



Value through Innovation



**2DScan™**  
**Barcode Scanner**  
**User's Manual**

## **FCC WARNING STATEMENT**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

## **FCC COMPLIANCE STATEMENT**

This device complies with Part 15 of the FCC Rules. Operation of this device is subject to the following conditions: this device may not cause harmful interference and this device must accept any interference received, including interference that may cause undesired operation.

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This digital apparatus does not exceed the Class B limits for radio noise for digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

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## Content

### *About this guide*

Introduction .....	1
Chapter Description .....	1
Graphic Notations .....	1

### *Getting to Start*

Introduction.....	2
Getting to know 2DScan.....	3
Unpacking.....	3
Outline .....	3
Data Interface.....	4
Communication Ports .....	5
Connecting with USB Cable.....	6
Connecting with RS232 Cable.....	7
Connecting with PS/2 Cable .....	8
Removal of Communication Cable.....	9
ON, OFF, IDLE, RESTART .....	10
Maintenance .....	10
Reading .....	11
Depth of Field .....	13
Specifications.....	14

### *Programming the Engine*

Introduction.....	15
Code Programming .....	15
Command Programming.....	15
QuickSet Programming .....	15
Programming Notation .....	16
Code Programming On/Off.....	17
Illumination.....	18
Aiming .....	19
Beep .....	20
Decoding Beep.....	20
Decoding Beep Type.....	20
Decoding Beep Volume .....	21
Power On Beep .....	21
Beep Denotation (Beeper Definitions) .....	21
Reading Mode.....	22
Reading Timeout and Delay .....	23
Sensitivity .....	24
Exposure Imaging Mode.....	25
Default .....	26
Factory Default .....	26
User Default.....	26
Query Product Information.....	27

# Table of Contents

---

## *RS232 Interface*

Introduction.....	28
Serial Port .....	29
Baud Rate.....	29
Parity Check.....	30
Hardware Auto Flow Control (only for 2DScan) .....	30
Data Bits Transmitted .....	31
Stop Bits.....	31

## *USB Interface*

Introduction.....	32
USB HID-KBW .....	33
USB Country Keyboard Types .....	34
USB Country Keyboard Types .....	35
Unknown Characters, Beep .....	36
Emulate ALT + keypad .....	37
Function Key Mapping .....	38
ASCII Function Key Mapping Table .....	39
Keystroke Delay .....	40
Caps Lock .....	40
Convert Case.....	41
Emulate Numeric Keypad.....	42
USB DataPipe .....	43
USB COM Port Emulation .....	44
HID-POS.....	45
Introduction.....	45
Access the Device in Your Program .....	46
Getting Scanned Data .....	46
VID and PID Table .....	46

## *PS/2 Interface*

Introduction.....	47
-------------------	----

## *Symbols*

Introduction.....	48
General Options .....	49
Disable Reading All .....	49
Enable Reading All .....	49
Enable Reading All 1D .....	49
Disable Reading All 1D .....	49
Enable Reading All 2D .....	50
Disable Reading All 2D .....	50
Code 128 .....	51
Load Factory Default .....	51
Enable/Disable Code 128 .....	51
Select Message Length .....	52

# Table of Contents

---

EAN-8 .....	53
Load Factory Default .....	53
Enable/Disable UCC/EAN-8 .....	53
Check Digit .....	53
2 Digits Addenda Code .....	54
5 Digits Addenda Code .....	54
EAN-8 expand to EAN-13 .....	55
EAN-13 .....	56
Load Factory Default .....	56
Disable/Enable EAN-13 .....	56
Check Digit .....	56
2 Digits Addenda Code .....	57
5 Digits Addenda Code .....	57
UPC-E .....	58
Load Factory Default .....	58
Disable/Enable UPC-E .....	58
Check Digit .....	58
2 Digits Addenda Code .....	59
5 Digits Addenda Code .....	59
Transmit Default "0" .....	60
UPC-E Expand to UPC-A .....	60
UPC-A .....	61
Load Factory Default .....	61
Disable/Enable UPC-A .....	61
Check Digit .....	61
2 Digits Addenda Code .....	62
5 Digits Addenda Code .....	62
Transmit Default "0" .....	63
Interleaved 2 of 5 .....	64
Load Factory Default .....	64
Disable/Enable Interleaved 2 of 5 .....	64
Select Message Length .....	65
Check Digit .....	66
Specified Lengths .....	67
ITF-14 .....	68
ITF-6 .....	69
Code 39 .....	70
Load Factory Default .....	70
Enable/Disable Code 39 .....	70
Transmit Start & Stop Character .....	70
Select Message Length .....	71
Check Digit .....	72
Decode ASCII .....	72
Codabar .....	73
Load Factory Default .....	73
Enable/Disable Codabar .....	73
Select Message Length .....	74
Check Digit .....	75
Transmit Start & Stop Character .....	76

# Table of Contents

---

Code 93.....	77
Load Factory Default.....	77
Enable /Disable Code 93 .....	77
Select Message Length .....	78
Check Digit .....	79
UCC/EAN-128.....	80
Load Factory Default.....	80
Enable/Disable UCC/EAN-128 .....	80
GS1 Databar.....	81
Load Factory Default.....	81
Enable/Disable GS1 Databar .....	81
Transmit AI(01) Character.....	81
EAN-UCC Composite.....	82
Load Factory Default.....	82
Enable/Disable EAN-UCC Composite .....	82
Code 11 .....	83
Load Factory Default.....	83
Enable/Disable Code 11.....	83
Select Message Length .....	84
Check Digit.....	85
ISBN .....	86
Load Factory Default.....	86
Enable/Disable ISBN.....	86
Transmit.....	86
Industrial 25 .....	87
Load Factory Default.....	87
Enable/Disable Industrial 25.....	87
Select Message Length .....	88
Check Digit.....	89
Standard 25 .....	90
Load Factory Default.....	90
Enable/Disable Standard 25.....	90
Select Message Length .....	91
Check Digit.....	92
Plessey .....	93
Load Factory Default.....	93
Enable/Disable Plessey .....	93
Select Message Length .....	94
Check Digit.....	95
MSI-Plessey .....	96
Load Factory Default.....	96
Enable/Disable MSI-Plessey .....	96
Select Message Length .....	97
Check Digit.....	98
PDF417.....	99
Load Factory Default.....	99
Enable/Disable PDF417.....	99
Select Message Length .....	100
PDF417 Twin Code.....	101
Forward/Positive Direction PDF 417 .....	101

# Table of Contents

---

QR Code .....	102
Load Factory Default .....	102
Enable/Disable QR Code .....	102
Select Message Length .....	103
QR Twin Code .....	104
Aztec .....	105
Load Factory Default .....	105
Enable/Disable Aztec .....	105
Select Message Length .....	106
Reading Multi-barcodes of an Image .....	107
The number of Multi-barcodes .....	108
Data Matrix .....	109
Load Factory Default .....	109
Enable/Disable Data Matrix .....	109
Select Message Length .....	110
Data Matrix Twin Code .....	111
Rectangular Symbols .....	112
Forward/Positive Direction Data Matrix .....	112
Maxicode .....	113
Load Factory Default .....	113
Enable/Disable Maxicode .....	113
Select Message Length .....	114

## OCR

Introduction.....	115
-------------------	-----

## Prefix/Suffix

Introduction.....	116
General Programming .....	117
Disable or Enable Prefix/Suffix .....	117
Prefix Sequences.....	118
Disable or Enable User Prefix .....	119
Program User Prefix .....	119
AIM Prefix .....	120
Code ID Prefix .....	121
Code ID Default.....	121
Modify Code ID.....	122
User Suffix .....	125
Disable or Enable User Suffix .....	125
Program User Suffix .....	125
Stop Suffix .....	126
Disable or Enable Stop Suffix .....	126
Program Stop Suffix .....	126

## Message Interception & Pack

Introduction.....	127
-------------------	-----



# Table of Contents

---

Message Interception .....	128
Programming 1D Intercept Option .....	129
Programming 2D Intercept Option .....	130
Message Pack.....	131
Introduction.....	131
Normal Pack .....	131

## *Batch Programming*

Introduction.....	132
How to build a batch command .....	133
Produce setting code .....	134
Use batch setting code .....	135

## *Appendix*

Digit Code.....	136
Save and Abort.....	138
Factory Default List .....	139
AIM ID List .....	144
Code ID List.....	145
Symbols ID Number .....	146

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# About this guide

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## Introduction

This User Guide provides installation and programming instructions for the 2DScan. Product specification and dimensions are also included.

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## Chapter Description

Getting to Start, explains the theory of operation and electrical interface of the 2DScan bar code scanner. It also describes how to install it and its technical specifications.

USB Interface, describes how to use three protocols of USB connection to link between 2DScan and USB Host. Four protocols are USB HID-KBW, USB DataPipe, USB COM Port Emulation, HID-POS respectively.

RS232 Interface, describes how to use the RS232 interface of the 2DScan to link with a series Host. It mainly explains the same communication parameters, including baud rate, parity check, data bits select, stop bits select and hardware auto flow control.

PS/2 Interface, describes how to use PS/2 Interface of 2DScan and parameters to link with a PS/2 port Host.

Symbols, lists all the available symbols and provides the parameters supported by the 2DScan.

OCR describes the OCR technology and provides the programming barcodes to enable/disable this feature.

Prefix/Suffix, lists all the types of Prefix/Suffix and provides the general programming barcode to program them.

Message Interception & Pack, describes the functions of Message Interception & Pack and provides the programming guide and barcode.

Batch Programming, describes the function and rules of Batch Programming.

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## Graphic Notations



Tool – Handy item for a task.



Attention – Important subject to be aware of or to avoid.



Tips – Helpful information about a topic or a feature.



Example – Illustration of how to use a feature.

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# Getting to Start

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## Introduction

2DScan is a 1D & 2D barcode reader. Auto-ID patented technology ensure 2DScan fast image capture and accurate decoding. It provides the customer the best value.

2DScan can be used as a hand-held reader or as hand-free reader in a stand. Ergonomically designed to provide comfortable and easy use.

Chapter One presents an overall picture of how to use 2DScan step by step. Please have an 2DScan and a stand handy.

This chapter is recommended to general users, maintenance personnel, and software programmers.

# Getting to Start

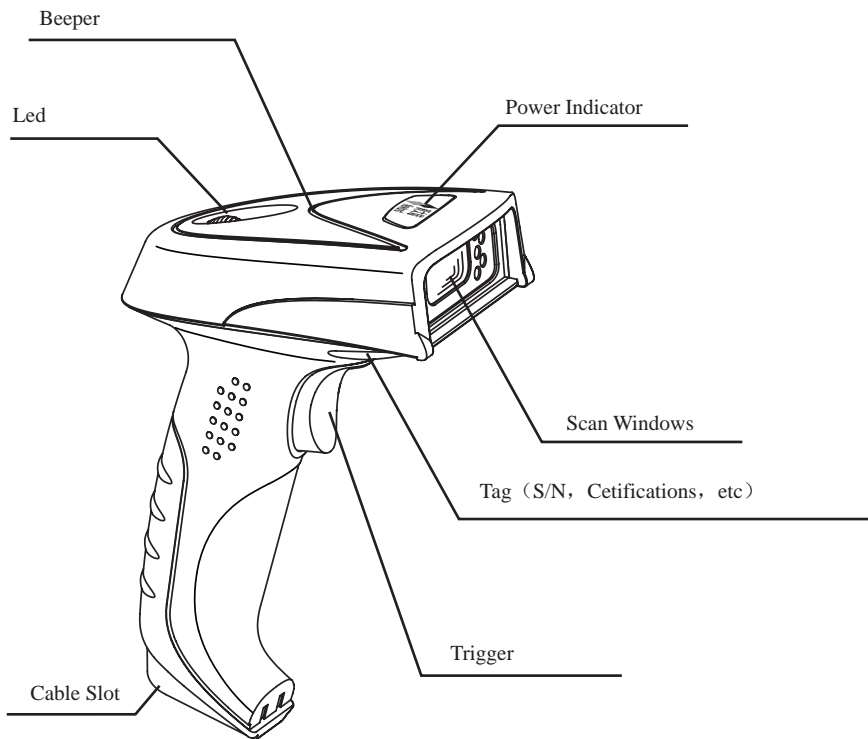
## Getting to know 2DScan

### Unpacking

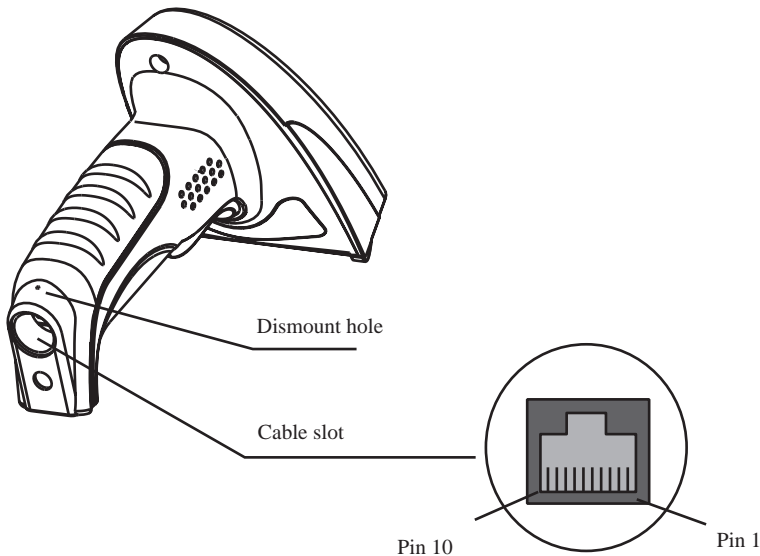
Unpack 2DScan and accessories. Check with the packing list. Make sure that there is no damage or missing part(s). If any damage or missing parts, please keep the original package and contact your supplier for services.

### Outline

The figure below shows major components of 2DScan.



Data Interface



There are two types of 2DScan with a different main board in it. 2Dscan's main board has USB and PS/2 interfaces and 2DScan's has USB and RS232 interfaces.

2DScan Interface Definition

Pin	Function
1	NC
2	NC
3	VCC 5.0V
4	TXD
5	RXD
6	CTS
7	RTS
8	GND
9	USBC D-
10	USBC D+

2DScan Interface Definition

Pin	Function
1	NC
2	NC
3	VCC 5.0V
4	KB_CLK
5	KB_DATA
6	PC_CLK
7	PC_DATA
8	GND
9	D-
10	D+

# Getting to Start

## Communication Ports

2DScan must connect to a Host to operate. A Host can be PC, POS, or any intelligent terminal with at least one of the following communication ports: USB, RS232, or PS/2.

### 1、USB

USB port on Host:



### 2、RS232

RS232 port on Host:



### 3、PS/2

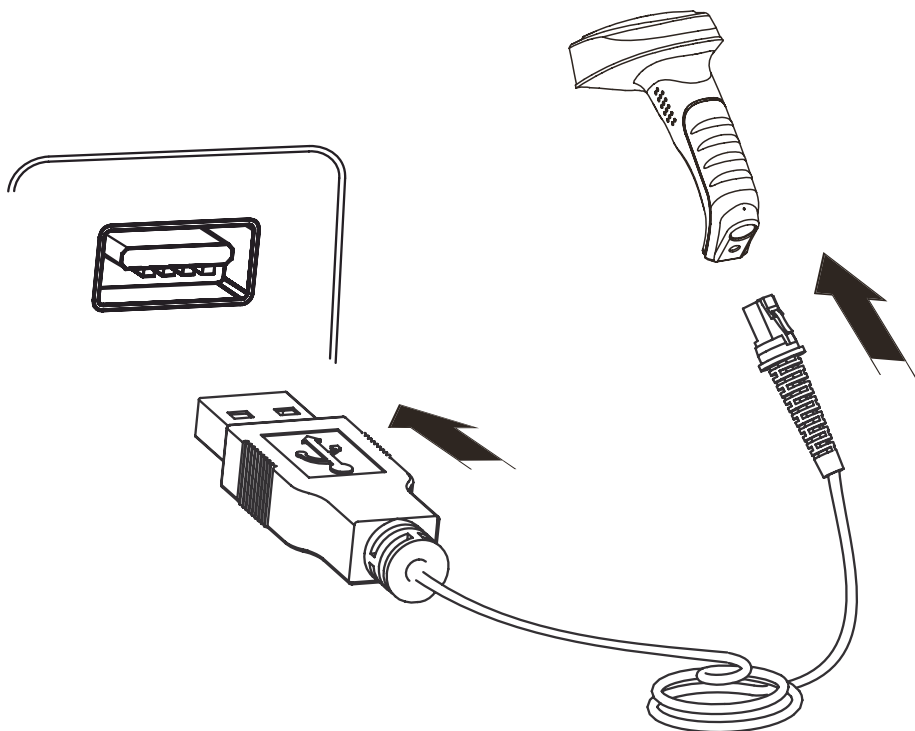
PS/2 port on Host:



2DScan has USB and PS/2 interfaces and 2DScan has USB and RS232 interfaces. Please check the ports first to order the fitting type of 2DScan and cables.

# Getting to Start

## Connecting with USB Cable



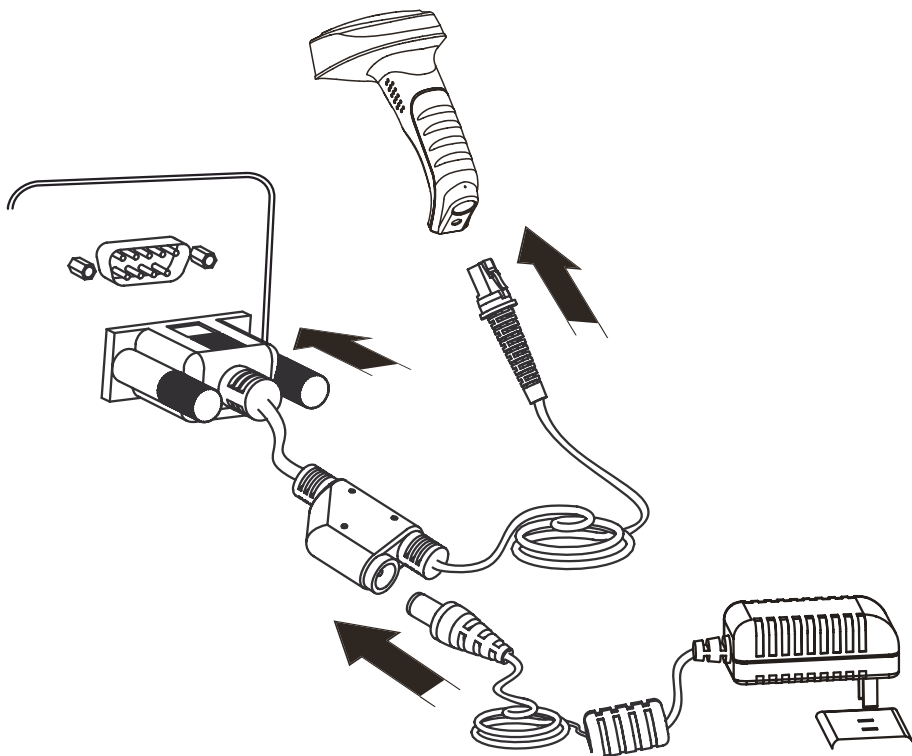
- 1、Insert USB Cable (RJ45 male head) into 2DScan cable slot;
- 2、Insert USB Cable (USB male head) into Host's (female) USB connector;



NOTE: 2DScan is a DataPipe device. You need to install the driver on the Host to communicate with 2DScan. See USB Interface

# Getting to Start

## Connecting with RS232 Cable

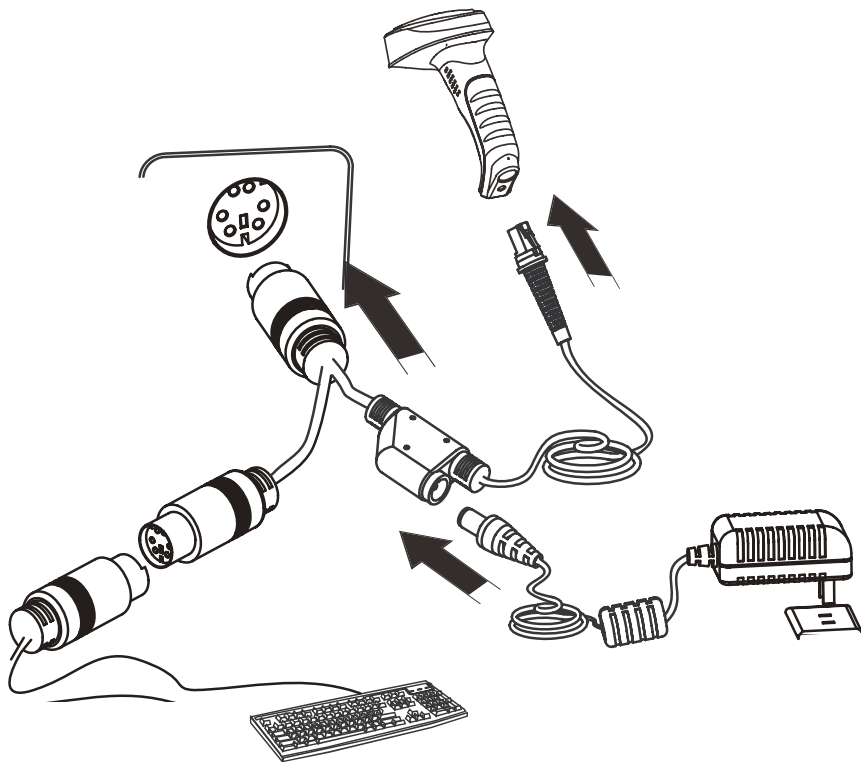


- 1、Insert RS232 cable (RJ 45 male head) into 2DScan cable slot;
- 2、Insert RS232 cable (RS232 male head) into Host's (female) RS232 connector;
- 3、Connect RS232 cable and the mains with power adapter;

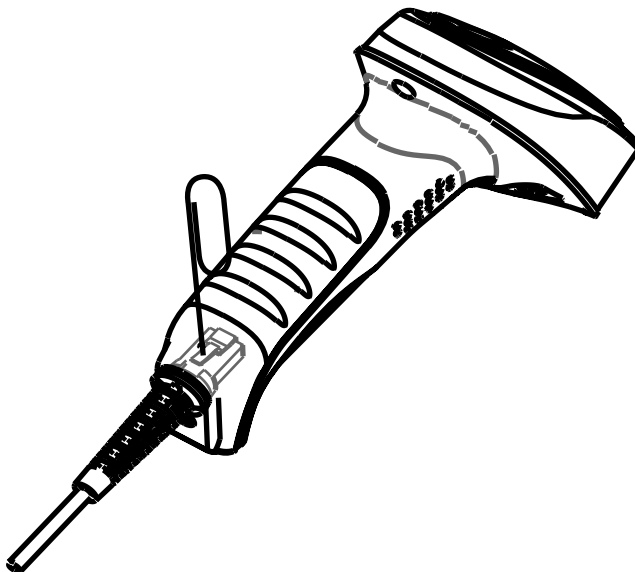


## Getting to Start

### Connecting with PS/2 Cable



- 1, Insert PS/2 cable (RJ 45 male DIN) into 2DScan cable slot;
- 2, Insert PS/2 cable (PS/2 male DIN) into Host PS/2 female slot;
- 3, If necessary, connect PS/2 cable and the mains with power adapter;
- 4, If necessary, keyboard can connect to female slot on the PS/2 cable;



A Pin that fit the 2DScan “dismount hole” is needed. A paper clip could be ideal. Stretch one end of the paper clip to fit the “Dismount Hole” . Follow the steps:

- 1、 For RS232 and PS/2 connections, unplug the power adaptor.
- 2、 Insert the Pin into “Dismount Hole” and keep some pressure.
- 3、 Pull out the cable gently.
- 4、 Pull out the Pin after the cable is removed.
- 5、 Unplug the connector from the Host.

# Getting to Start

---

## ON, OFF, IDLE, RESTART

### Power On

Connect 2DScan and Host, 2DScan will power on automatically and in "Idle" (ready to use) state (factory default).

### Power Off

There are 4 ways to "Power OFF":

- » Remove Cable Off 2DScan;
- » Remove Power Adapter Off RS232 Cable;
- » Remove USB Cable from the Host;
- » Remove PS/2 cable from the Host. If a power adapter is connected, remove it too.

### IDLE Mode

When reader is NOT reading, it is in "IDLE mode".

With no reading attempt within a timeout, the Imager will switch to IDLE mode automatically.

### RESTART

If 2DScan halted and does not respond to operations, please "Restart" by "Power OFF", and then "Power ON".

### Maintenance

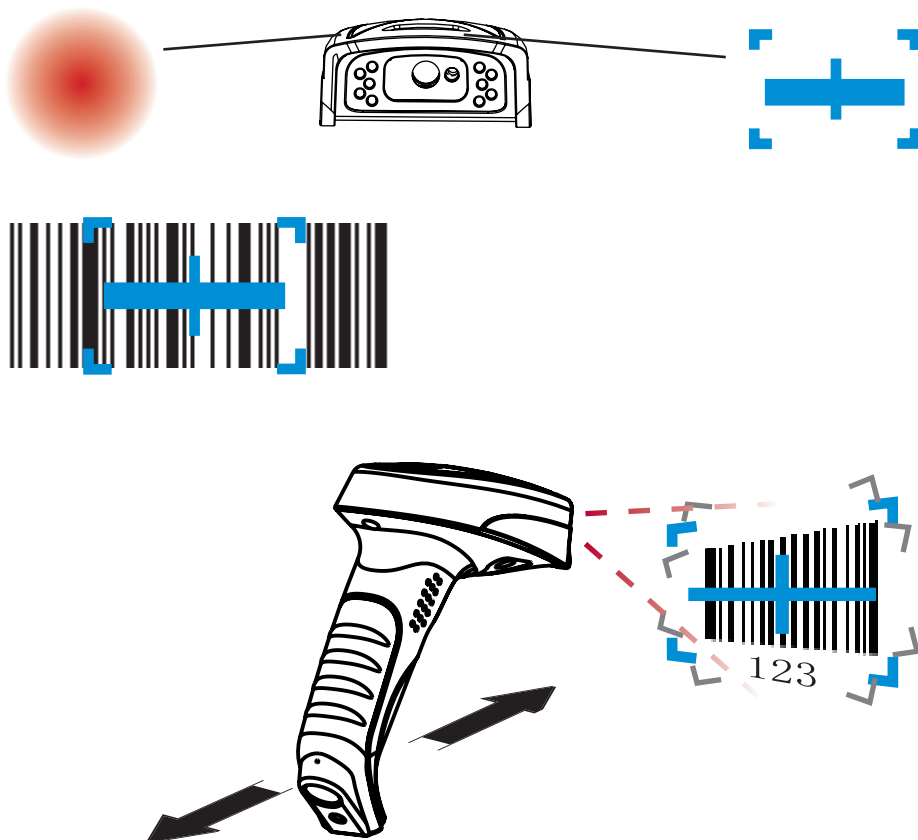
- » The scan window must be kept clean. Improper maintenance will breach the limited warranty.
- » Avoid rough objects not to damage or scratch the window.
- » Use brush to remove the stain.
- » Use soft cloth (cloth for glasses) to clean.
- » Prohibit spraying towards the window.
- » Only use clean water as a cleanser.

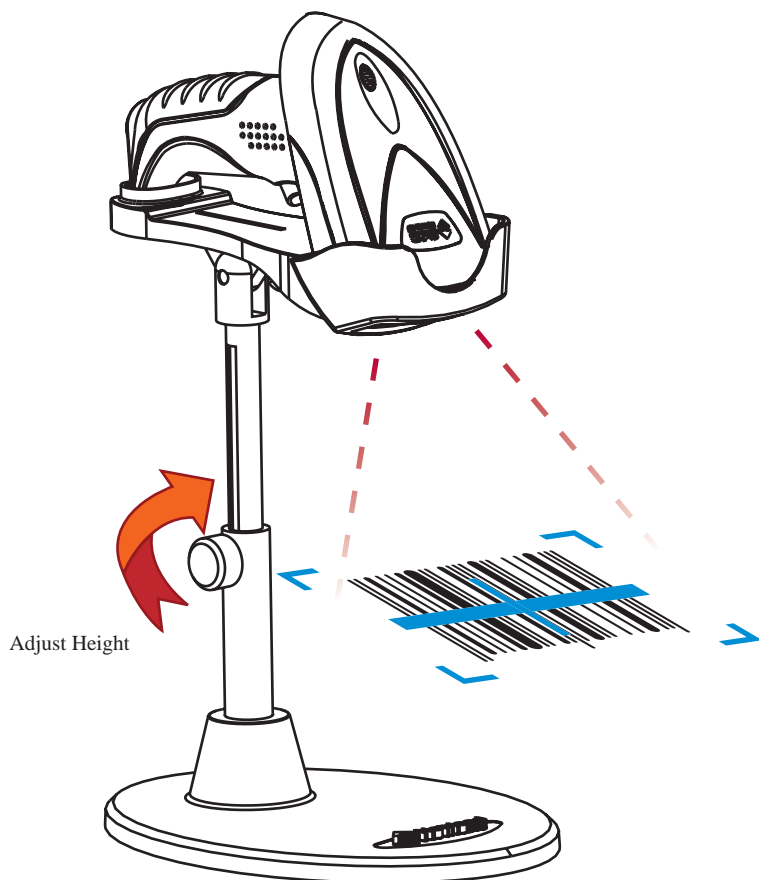
# Getting to Start

## Reading

- 1、Ensure 2DScan, cables, and the Host are connected, then turn the unit Power ON
- 2、Press & hold Trigger.  
Illumination LED and Aiming LED cast an Illumination Pattern (red light) and an Aiming Pattern (blue light);
- 3、Keep Aiming Pattern in the center of a bar code. Zoom in and zoom out to allocate the Optimum Reading Stance.
- 4、On a successful reading, there' ll be a beep sound, illumination & aiming patterns die out. The 2DScan then transmits barcode message to the Host.

NOTE: Experiences tell a certain range of distances has higher successful reading rate. This range is the Optimum Reading Stance.



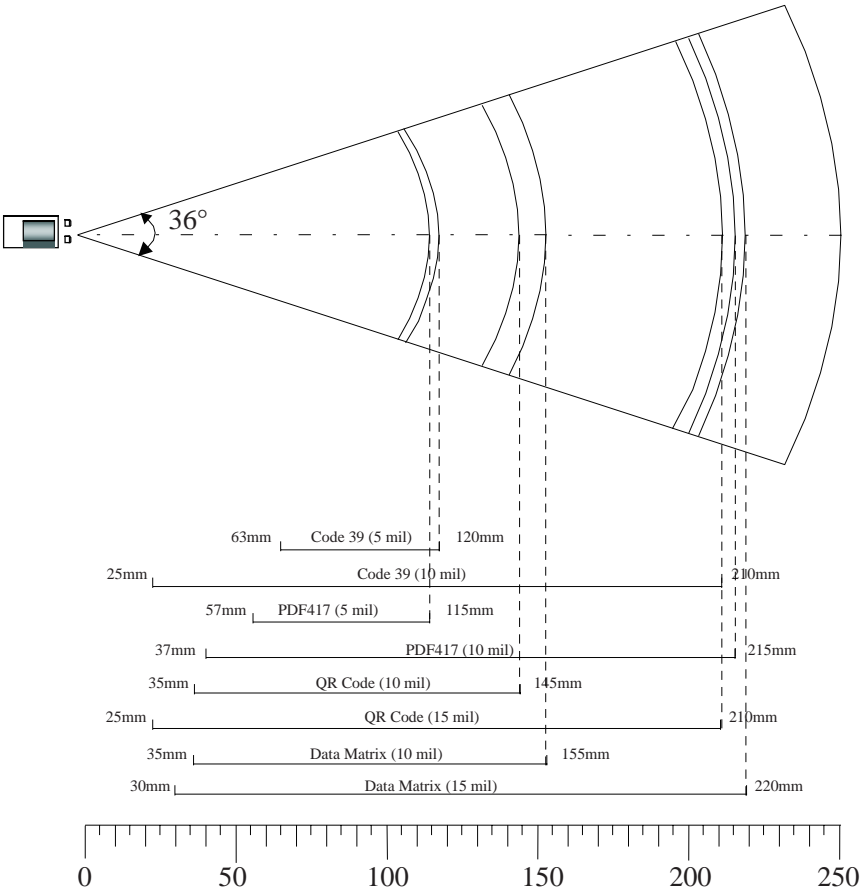


- 1、Select reading mode “auto mode” or “continuous mode” when working in hands-free mode.
- 2、Adjust the stand height for the optimum reading stance.

# Getting to Start

## Depth of Field

Reading Stance is defined as the distance between the Imager front and an object (barcode). It effects image capturing area and image quality, and thus effects reading performance.



# Getting to Start

## Specifications

Performance		
Image Sensor		CMOS
Resolving		752 * 480
Interface		RS232 / HID-KBW / USB DataPipe/ USB COM Port Emulation / HID-POS/ PS2
Symbologies	2D	PDF417, QR Code(Model 1/2), DataMatrix (ECC200, ECC000, 050, 080,100,140), Aztec, Maxicode, etc.
	1D	Code128, EAN-13, EAN-8, Code39, UPC-A, UPC-E, Codabar, Interleaved 2 of 5, ISBN, Code 93, GS1 Databar, Code 11,etc
Precision		≥ 5mil
Light Source		LED(630 nm ± 10 nm)
Light Intensity		300 LUX (130 mm )
Depth of Scan Field		45 mm ~ 450 mm
Print Contrast Signal		≥ 30%
Roll		360°
Yaw(Skew)		45°
Pitch		45°
Illumination		0 ~ 100,000 LUX
Mechanical/ Electrical		
Power Consumption		1.65 W
Voltage		DC 5 V
Current	Max	330 mA
	Oper.	290 mA
	Idle	200 mA
Weight		250g
Environment		
Operate Temperature		-5° C - +45° C
Storage Temperature		-40° C - +60° C
Humidity		5% - 95% ( non-condensing )
Certificates		
FCC Part15 Class B, CE EMC Class B		

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# Programming the Engine

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## Introduction

There are 3 ways to program (configure) the Engine, Code Programming, Command Programming, and QuickSet Programming.

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## Code Programming

The Engine reads a set of specially encoded barcodes to program features. In the following sections, we will explain the options and features available and provide the barcodes to program them.

This method of programming the Engine is most straight forward. However, it requires manually readings of each barcode. As all manual operations, errors are more likely to occur.

---

## Command Programming

The Host can send the Pro CMD strings (see the chapter of Software Interface) to program the Engine. In the following sections, the Pro CMD strings will be included with the barcodes for Code Programming.

A fixture, could be used to program the Engines before they are installed into your equipments or systems. Another alternative is to design the configuration capability in your equipments or systems.

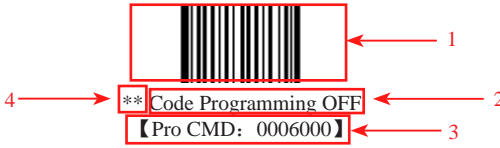
This method of programming the Engine could be automated. A software program can be developed to download all the configuration data to the Engine.

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Note: The programming results are restored in non-volatile memory. They will not be lost when the Engine is powered off.





Code Programming ON



Code Programming OFF



This is the notation to disable the Code Programming.

There are 4 parts of a notation:

- 1、The first part of the notation is the barcode for Code Programming
- 2、The second part of the notation is the name of the options or features, such as Disable Code Programming.
- 3、The third part of the notation is the corresponding Pro CMD string of the Code Programming.
- 4、If there is “\*\*” in front of the name, it means the notation is factory default.



Read the “Code Programming ON” barcode to activate “Code Programming” function. One or more Code Programming barcodes can be read to configure the Engine.

If an option or feature needs additional parameters, such as digits, they can be found at the end of this chapter.

To exit Code Programming, read “Code Programming OFF” or any normal barcode.

**Code Programming ON**



**Code Programming OFF**



**\*\* Code Programming OFF**  
**【Pro CMD: 0006000】**



**Code Programming ON**  
**【Pro CMD: 0006010】**

The value of code programming can be sent to the Host. For factory default, “No Send Pro Code Value” , the value of programming codes will not be sent to the Host; by reading “Send Pro Code Value” , the reader will send the value of Programming Code to the Host.



**\*\*No Send Pro Code Value**  
**【Pro CMD: 0002000】**



**Send Pro Code Value**  
**【Pro CMD: 0002010】**



Illumination LED lighting up barcodes are used to capture better images.

There are 4 modes:

**Code Programming ON**



**Code Programming OFF**



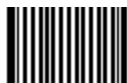
- » “Illumination Wink” : LED keeps flashing when reading
- » “Illumination Keep ON” : LED keeps on when Power ON
- » “Illumination Read ON” : LED keeps on when reading
- » “Illumination OFF” : LED is off all the time



\*\* Illumination Wink  
【Pro CMD: 0200000】



Illumination Read ON  
【Pro CMD: 0200030】



Illumination Keep ON  
【Pro CMD: 0200010】



Illumination OFF  
【Pro CMD: 0200020】

There are 3 modes:

- » “Aim Wink” : LED keeps flashing when reading
- » “Aim Keep ON” : LED keeps on when Power ON
- » “Aim OFF” : LED is off all the time
- » “Sense Mode” : LED is off when reading, on when not reading.

Code Programming ON



Code Programming OFF



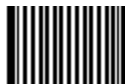
\*\* Aim Wink

【Pro CMD: 0201000】



Aim Keep ON

【Pro CMD: 0201010】



Aim OFF

【Pro CMD: 0201020】



Sense Mode

【Pro CMD: 0201030】

### Decoding Beep

Read “Beep ON” to enable all decoding beep denotation and read “Beep OFF” to disable.

Code Programming ON



\*\*Beep ON

【Pro CMD: 0203010】

Code Programming OFF



Beep OFF

【Pro CMD: 0203000】

### Decoding Beep Type



\*\*Type 1

【Pro CMD: 0203020】



Type 3

【Pro CMD: 0203022】



Type 2

【Pro CMD: 0203021】

### Decoding Beep Volume



\*\* Loud

【Pro CMD: 0203030】



Medium

【Pro CMD: 0203031】



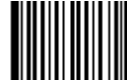
Low

【Pro CMD: 0203032】

Code Programming ON



Code Programming OFF



### Power On Beep



\*\* Beep On

【Pro CMD: 0204001】



Beep OFF

【Pro CMD: 0204000】

### Beep Denotation (Beeper Definitions)

Beep	Denotation
low-higher-higher-higher	Power ON completed
1 beep	successful reading of an ordinary barcode
2 beeps	successful reading of an programming barcode
3 short low-2 high	reading failure
1 long low	Unknown Character, Virtual Keypad (USB connection)

# Programming the Engine

## Reading Mode



## Tools

» Hand-held Mode: Pull and keep holding the trigger line to read. Complete one reading or release the trigger to terminate reading status.

» Auto Mode: The ambient luminance change in front of the engine automatically initiates reading. After completion of reading, the engine goes to idle. Both luminance change and the Trigger can initiate reading when idle.

» Continuous Mode: Pull the Trigger line low to start reading. The engine will keep reading. To stop, pull trigger line low again.

**Code Programming ON**



**Code Programming OFF**



**\*\*Hand-held Mode**  
**【Pro CMD: 0302000】**



**Continuous Mode**  
**【Pro CMD: 0302020】**



**Auto Mode**  
**【Pro CMD: 0302010】**

# Programming the Engine

## Reading Timeout and Delay



**One Reading Timeout:** If the engine doesn't read any barcode during the timeout period, it will stop reading automatically. One Reading Timeout is valid in Auto mode. The default timeout is 3000ms.

Code Programming ON



**Same Barcode Reading Delay:** It is used to avoid misreading on the same barcode (the same format and message) in a Same Barcode Reading Delay Time. It is valid only in Auto mode. The default delay is 1500ms.

Code Programming OFF



One Reading Timeout  
【Pro CMD: 0313000】



Same Barcode Reading Delay  
【Pro CMD: 0313010】

There are two options available in Same Barcode Reading Delay:

- » (Multi-reading) Prohibit: The same symbol can be read after delay.
- » (Multi-reading) Semi-prohibit: The same symbol can be read more than once in the delay period if ambient illumination is changed, for example the bar code is removed out of reading area and moved back.



\*\* Multi-reading Semi-prohibit  
【Pro CMD: 0313020】



Multi-reading Prohibit  
【Pro CMD: 0313030】

# E

sample

To set One Reading Timeout to 1500ms, read these programming codes:

- 1、 "Code Programming ON"
- 2、 "One Reading Timeout"
- 3、 Digit Code "1","5","0","0" see Digit Code
- 4、 "Save Programming"





- » Sensitivity is how sensitive the engine is to ambient illumination change.
- » Sensitivity value is [1 .. 20]
- » The lower the sensitivity value is the higher sensitivity will be. The lower the sensitivity value is the smaller illumination change will initiate reading.

**Code Programming ON**



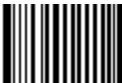
**Code Programming OFF**



High Sensitivity (= 8)  
【Pro CMD: 0312020】



Enhanced Sensitivity (= 5)  
【Pro CMD: 0312030】



\*\* Normal Sensitivity (= 11)  
【Pro CMD: 0312010】



Program Sensitivity  
(Min:1, Max:20)  
【Pro CMD: 0312040】



Low Sensitivity (= 14)  
【Pro CMD: 0312000】



Code Programming ON



Code Programming OFF



\*\* Normal Exposure Mode  
【Pro CMD: 0321000】



Reflections Eliminating Mode  
【Pro CMD: 0321010】

# Programming the Engine

Default



Tools

## Factory Default

Read “Load All Factory Default” to reset all parameters to factory default.

Applicable conditions:

- » User options programming wrong configuration leads to reading malfunction
- » Forget details of previous programming and start over.

Code Programming ON



Code Programming OFF



\*\*Load All Factory Default  
【Pro CMD: 0001000】

## User Default

All user options can be saved as User Default. It will be restored in non-volatile memory.

Read “Save as User Default” to save all the current user options to be User Default, and erase the previous User Default. Read “Load User Default” to restore the engine to User Default.



Save as User Default  
【Pro CMD: 0001150】



Load User Default  
【Pro CMD: 0001160】



If read “Load All Factory Default”, User Default will still be restored in non-volatile memory.

# Programming the Engine

## Query Product Information



Tools

Product information could be obtained by reading "Query Product Information" barcode. The engine will send it to the Host immediately.

"Power ON, Send Product Info" , the engine sends product information through serial port(only) to the Host after Power ON.

Code Programming ON



Code Programming OFF



Query Product Information  
【Pro CMD: 0003000】



\*\*Power ON, Do not Send Product Info  
【Pro CMD: 0007000】



Power ON, Send Product Info  
【Pro CMD: 0007010】

The product information is provided as follows:

Title	Remarks
Firmware Ver	Device Firmware Version
Build Time	Device Firmware Version Establishing Time
Device ID	Device Type
App Ver	Device Application Version
uIMG Ver	Device uIMG Version
Date	Device Manufacture Date
S/N	Device serial number
ESN	User-defined device serial number
Manufacture ID	Device Name
Interface	1 types of communication interfaces: TTL232(EM3000) or RS232(EM2027), baud rate, parity check, data bits, stop bit
1D	Indicate that reading 1D is allowed. Symbols are divided by comma. Additional features format: 1. "+" connect features 2. Min Message Length -> Max Message Length 3. "No Check Digit" or "Check Digit" 4. "Fixed Length: 2~64 even value" . It is in this format: Fixed Length: 2 4 6 8 10 12...
2D	Indicate that reading 2D is allowed. Symbols are divided by comma. Additional feature format: Min Message Length -> Max Message Length
Scan Mode	Scan Mode: 1. Manual Scan 2. Auto Scan 3. Continuous Scan

# RS232 Interface

---

## Introduction

Under RS232 connection, the engine and the Host use the same communication parameters: baud rate, parity check, data bits select and stop bits select.



Enable RS232 Connection  
【Pro CMD: 1100000】



The engine and the Host should use the same serial port parameters: baud rate, parity check, data bits and stop bits. The sequence is as follows: 9600 (baud rate), null (parity check), 8 (data bits), 1 (stop bits).

Code Programming ON



### Baud Rate

Baud rate is the number of bits of data transmitted per second. Set your scan engine baud rate to match the baud rate setting of the Host device. Otherwise, they can not communicate.

Code Programming OFF



The engine supports the following baud rates (The default baud rate is 9600):



\*\*9600

【Pro CMD: 0100030】



19200

【Pro CMD: 0100050】



1200

【Pro CMD: 0100000】



38400

【Pro CMD: 0100060】



2400

【Pro CMD: 0100010】



57600

【Pro CMD: 0100070】



4800

【Pro CMD: 0100020】



115200

【Pro CMD: 0100080】



14400

【Pro CMD: 0100040】

### Parity Check

Parity check options should be the same on the engine and the Host.

- » Select Odd parity: If data has an odd number of 1 bits, the parity bit value is set to 0.
- » Select Even parity: If data has an even number of 1 bits, the parity bit value is set to 0.
- » Select No Parity Check and parity bit will not be sent.

Code Programming ON



Code Programming OFF



\*\*No Parity Check  
【Pro CMD: 0101000】



Odd Check  
【Pro CMD: 0101020】



Even Check  
【Pro CMD: 0101010】

### Hardware Auto Flow Control (only for 2DScan)

When enabled, 2DScan will decide if the data should be sent in accordance with CTS signal level. When it is low level CTS signal, it means the serial port's cache memory of receiving end (such as PC) is full and 2DScan will not send data through RS232 until CTS signal is set to high level by receiving end.

When 2DScan is not ready for receiving, it will set RTS signal to low level. When sending end (such as PC) detects it, it could not send data to 2DScan any more, otherwise the data will be lost.

When disabled, data's sending and receiving through serial port will not be effected by RTS/CTS signal.



\*\*Disable Hardware Auto Flow Control  
【Pro CMD: 0104000】



Enable Hardware Auto Flow Control  
【Pro CMD: 0104010】



Before enabling this function, please be sure that RTS/CTS signal line is contained in RS232 cable. If not, a RS232 communication error will occur.

Data Bits Transmitted



Select data bits transmitted to be 5, 6, 7 and 8. Ensure the selections on the engine and the Host are the same.



**\*\* 8 Data Bits**  
**【Pro CMD: 0103030】**



**6 Data Bits**  
**【Pro CMD: 0103010】**



**7 Data Bits**  
**【Pro CMD: 0103020】**



**5 Data Bits**  
**【Pro CMD: 0103000】**

Stop Bits

Stop bit follows every byte to indicate the end of transmission and the start of the next transmission.

Default 1 stop bit.



**\*\*1 Stop Bits**  
**【Pro CMD: 0102000】**



**2 Stop Bits**  
**【Pro CMD: 0102010】**



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# USB Interface

---

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## Introduction

When only data transmission is needed through USB connection, USB HID-KBW option can be programmed. It emulates the unit's transmission as a USB keyboard input. The Host receives keystrokes of the virtual keyboard. It is "Plug and Play". There is no driver required.

## USB Interface

### USB HID-KBW



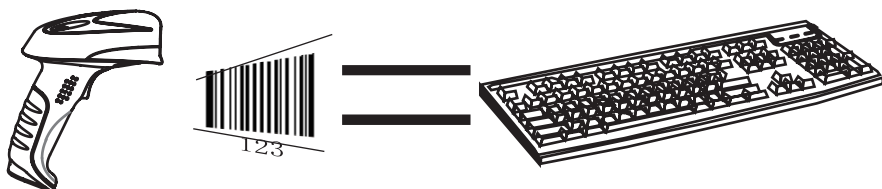
Tools

USB connection (no driver needed) supports simulating the Imager transmission to be a USB keyboard input. The Host receives keystrokes of the virtual keyboard. It works in “Plug and Play” base. There is no driver required.

Code Programming ON



Code Programming OFF



Select USB HID-KBW

【Pro CMD: 1100020】



-----  
If the input field of the Host allows keyboard input, no software needed to assist HID-KBW input.  
-----



### USB Country Keyboard Types

» The keyboard arrangements and country codes vary in different countries. Refer country codes to the table “USB Country Keyboard Types” . Follow the steps mentioned below to program.

- » 1. “Code Programming ON”
- » 2. “Select Country Code”
- » 3. Read digit codes (according to country code)
- » 4. “Save programming”
- » 5. “Code Programming OFF”

Code Programming ON



Code Programming OFF



Select Country Code  
【Pro CMD: 1103000】

# E

*xample*

Emulate Norway keyboard:

- 1. "Code Programming ON"
- 2. "Select Country Code"
- 3. Digit code: "1", "5"
- 4. "Save Programming"
- 5. "Code Programming OFF"

# USB Interface

## USB HID-KBW

### USB Country Keyboard Types

Country/Language	Number	Country/Language	Number
U.S.	0	Netherlands(Dutch)	14
Belgium	1	Norway	15
Brazil	2	Poland	16
Canada(French)	3	Portugal	17
Czechoslovakia	4	Romania	18
Denmark	5	Russia	19
Finland(Swedish)	6	Slovakia	21
France	7	Spain	22
Germany/Austria	8	Sweden	23
Greece	9	Switzerland(German)	24
Hungary	10	Turkey F	25
Israel(Hebrew)	11	Turkey Q	26
Italy	12	U.K	27
Latin-American	13	Japan	28

### Unknown Characters, Beep

HID-KBW deems an unknown character to be a character is not included in a country keyboard type. It may not be able to allocate and send a keystroke, thus lead to an error beep.

Code Programming ON



Code Programming OFF



\*\* No Beep, Unknown Character  
【Pro CMD: 1103030】



Beep, Unknown Character  
【Pro CMD: 1103031】

## Example

Suppose select country keyboard types France (number 7), read a barcode "ADF". Since the "Đ" (0xD0) is not included in France country code, the Imager skip "Đ" and transmit "AF". For factory default, no beep produced. Read "Beep, Unknown Character" to indicate unknown character.



### Emulate ALT + keypad

When enabled, full ASCII characters (0x00~0xff) can be sent over the numeric keypad regardless of country keyboard selections.

- 1、 “ALT” Make
- 2、 According to the ASCII value, input the numbers over the numeric keypad
- 3、 “ALT ” Break

Code Programming ON



Code Programming OFF



\*\* No Emulate ALT + keypad  
【Pro CMD: 1103060】



Emulate ALT + keypad  
【Pro CMD: 1103061】



Too much keystroke emulation slows the sending speed.



Suppose country code “7” , France is selected, and “Emulate ALT + keypad” is enabled. Barcode message "ADF" (65/208/70) will be sent as:

1. “ALT make” + “0, 6, 5” + “ALT Break”
2. “ALT make” + “2, 0, 8” + “ALT Break”
3. “ALT make” + “0, 7, 0” + “ALT Break”

### Function Key Mapping

When enabled, function characters (0x00~0x1F) are sent as ASCII sequences over the numeric keypad.

- 1、 “Ctrl make”
- 2、 Hit function key
- 3、 “Ctrl Break”

Code Programming ON



Code Programming OFF



\*\* No Function Key Mapping  
【Pro CMD: 1103130】



Function Key Mapping  
【Pro CMD: 1103140】

## Example

-----  
USB HID-KBW set to be factory default. Enable “Emulate CTRL + keypad” . Read barcode “A(tab)F” (0x65/0x09/0x70). The sequence is:

1. Keystroke “A”
2. Input “Ctrl I” by “Ctrl make” , Keystroke “I” , “Ctrl break”
3. Keystroke “F”

For some text editors “Ctrl I” is italic convert. So the output may be “AF”  
-----



-----  
Enable “Emulate ATL + keypad” will automatically disable “Emulate CTRL + keypad”  
-----

ASCII Function Key Mapping Table

ASCII(HEX)	Function key	ASCII(HEX)	Function Key
00	2	10	P
01	A	11	Q
02	B	12	R
03	C	13	S
04	D	14	T
05	E	15	U
06	F	16	V
07	G	17	W
08	H	18	X
09	I	19	Y
0A	J	1A	Z
0B	K	1B	[
0C	L	1C	\
0D	M	1D	]
0E	N	1E	6
0F	O	1F	.





### Keystroke Delay

This parameter sets the delay, in milliseconds, between emulated keystrokes. Scan programming code below to increase the delay when the Host require a slower transmission of data.



\*\* No Delay

【Pro CMD: 1103050】

Code Programming ON



Code Programming OFF



Long Delay(40ms)

【Pro CMD: 1103052】



Short Delay(20ms)

【Pro CMD: 1103051】

### Caps Lock

The case of the data is inverted regardless of the state of the Caps Lock key on the Host. Lower case and upper case are converted correspondingly.



\*\* Disable Caps Lock

【Pro CMD: 1103010】



Enable Caps Lock

【Pro CMD: 1103020】



“Convert Case” , “Emulate ALT + keypad” and “Function Key Mapping” option prevails “Enable Caps Lock”

**E**  
*xample*

“Enable Caps Lock” , barcode message “AbC” is transmitted as “aBc”

### Convert Case

The Imager converts all barcode messages to the selected case.

Code Programming ON



\*\* No Case Conversion  
【Pro CMD: 1103040】

Code Programming OFF



Convert All to Upper Case  
【Pro CMD: 1103041】



Convert All to Lower Case  
【Pro CMD: 1103042】

**E**  
*xample*

-----  
Read “Convert All to Lower Case” , Barcode message “AbC” is sent as “abc”  
-----



### Emulate Numeric Keypad



Code Programming ON



Code Programming OFF



When disable, the whole barcode message will be emulated as keystrokes on main keyboard.

Read “Emulate Numeric Keypad” to enable the function, when “0~9” is of the barcode message, it will be emulated as keystrokes on numeric keypad. But sign such as “+” “\_” “\*” “/” “.” is emulated as keystrokes on main keyboard.

Numeric keypad is normally at the right of a standard keyboard. This function is effected by the current state of “Num Lock” of Host's numeric keypad. The emulate numeric keypad couldn't control the state of “Num Lock” . So, if “Num Lock” light off, the output is function key instead of numbers.



\*\* Disable Emulate Numeric Keypad

【Pro CMD: 1103110】



Emulate Numeric Keypad

【Pro CMD: 1103120】



Check Num Lock light before use this function.

Enable “Emulate ALT + keypad” will automatically disable this function

# E xample

Enable “Emulate Number Keyboard” and read the “A4.5” barcode. If “Num Lock” on the Host is ON, the data received will be “A4.5” . If “Num Lock” is OFF, Host will receive the data from keyboard as follow:

Host receives data “A” . This character is not included in keyboard, thus the data will be sent as normal.

Next, Host receives data “4” corresponding to the instruction of “Cursor move to left” .

Then, Host receives data “.” corresponding to the instruction of “delete the character just back of cursor” .

There is no input generated by data “4” as the data “5” corresponds to NO instructions.



This protocol is defined by Newland Reference. A driver has to be installed before using this protocol to communicate with reader,

The advantage of using this protocol is the fast data transmission. Meanwhile, the SDK can be easily integrated into the application system.

**Code Programming ON**



**Code Programming OFF**



Select USB DataPipe  
【Pro CMD: 1100010】



When the USB port is connected to Host serial port in order to receive data from scanner, the model of imitating USB-to-RS232 has to be chosen. Hence, the engine and the Host must communicate at the same parameters and the parameters of real serial port and visual serial port must be the same.

**Code Programming ON**



**Code Programming OFF**



Select USB COM Port Emulation

【Pro CMD: 1100060】



### Introduction

The HID POS interface is recommended for new applications. It can send up to 56 characters in a single USB report and is much faster than keyboard emulation.

» Features:

» HID based, no custom driver required

» Much faster than keyboard emulation and traditional RS-232

» Symbology identifiers (AIM and Hand Held Products) are always contained in the input report, which uses USB direction names: input (to the PC) and output (to the device)

Note: HID POS does not require a custom driver installation. However, a HID interface on Windows 98 does.

Code Programming ON



Code Programming OFF



Select HID-POS

【Pro CMD: 1100080】

# USB Interface

HID-POS



Tools

## Access the Device in Your Program

CreateFile opens the device as a HID, then ReadFile delivers the scanned data to the application. Use WriteFile to send data to the device.

For complete information on USB and HID interfaces, please see [www.USB.com](http://www.USB.com).

Code Programming ON



Code Programming OFF



## Getting Scanned Data

After scanning and decoding a bar code, the device sends the following input report:

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 0x02							
1	Length of the bar code (field "Decoded Data")							
2-57	Decoded Data (1-56)							
58-61	Reserved (1-4)							
62	Symbology Identifier or N/C: 0x00							
63	7	6	5	4	3	2	1	Decode Data Continued

## VID and PID Table

USB uses two numbers to identify a device and find the correct drivers. The first is the VID (Vendor ID), assigned by the USB Implementers Forum. The vendor ID (VID) is 1EAB (hex). The second is the PID (Product ID). A range of PIDs is used for each product sub family, so each PID contains a base number and an interface type (keyboard, COM port, etc.).

Device	Interface Type	PID(Hex)	PID(Dec)
EM2027	Base	0200	512
	HID POS	0210	528
2DScan	Base	0100	256
	HID POS	0110	272

---

# PS/2 Interface

---

## Introduction

PS/2 connection is emulated as an HID-KBW input.

It can only transmit data to the Host, and does not support programming commands from the Host.

It does not support hot plug. Connecting P/S 2 Plugging while the unit is on will cause permanent damage.



Select PS/2

【Pro CMD: 1100070】



---

# Symbols

---

---

## Introduction

This chapter lists all the available symbols and provides the programming barcodes to enable/disable them.

Disabling reading of the symbols which do not apply, will improve reading performance. The fewer symbols the engine has to read, the faster the engine will work.



### Disable Reading All

Disable Reading All = Allow reading Programming Codes only.

Code Programming ON



Disable Reading All  
【Pro CMD: 0001010】

Code Programming OFF



### Enable Reading All

Enable Reading All = Enable to read all symbols and Programming Codes.



Enable Reading All  
【Pro CMD: 0001020】

### Enable Reading All 1D



Enable Reading All 1D  
【Pro CMD: 0001040】

### Disable Reading All 1D



Disable Reading All 1D  
【Pro CMD: 0001030】



Enable Reading All 2D



Enable Reading All 2D  
【Pro CMD: 0001060】

Code Programming ON



Code Programming OFF



Disable Reading All 2D



Disable Reading All 2D  
【Pro CMD: 0001050】

# Symbols

## Code 128



Load Factory Default



\*\* Load Code 128 Factory Default  
【Pro CMD: 0400000】

Code Programming ON



Code Programming OFF



Enable/Disable Code 128



Disable Code 128  
【Pro CMD: 0400010】



\*\* Enable Code 128  
【Pro CMD: 0400020】



When the engine can not read Code 128, please read “Enable Code 128” and try again.



### Select Message Length

It is used to program the valid reading length of Code 128. The engine will not send barcode message to the Host, if the decoded data length does not match the valid length.

Code 128 Message Length is defined by “Min. Message Length” and “Max. Message Length” .

Code Programming ON



Code Programming OFF



Min Message Length (default: 1)  
【Pro CMD: 0400030】



Max Message Length (default: 48)  
【Pro CMD: 0400040】



1D bar code Message Length should not exceed 127 bytes. If Max Message Length is less than Min Message Length, it means the engine will only support barcodes of the two lengths. If Max Message Length is equal to Min Message Length, the engine will only support barcodes of the length.

## Example

To set Min Message Length of Code 128 to 8 bytes and Max Message Length to 12 bytes, read these programming codes

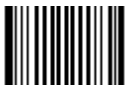
- 1、“Code Programming ON”
- 2、“Select Min Message Length”
- 3、Digit Code “8” , see Digit Code
- 4、“Save Programming” ,see Digit Code
- 5、“Select Max Message Length”
- 6、Digit Code “1”
- 7、Digit Code “2”
- 8、“Save Programming”
- 9、“Code Programming OFF”

# Symbols

## EAN-8



Load Factory Default



\*\* Load UCC/EAN-8 Factory Default  
【Pro CMD: 0401000】

Code Programming ON



Code Programming OFF



Enable/Disable UCC/EAN-8



\*\* Enable UCC/EAN-8  
【Pro CMD: 0401020】



Disable UCC/EAN-8  
【Pro CMD: 0401010】

Check Digit

UCC/EAN-8 is fixed 8 digits barcode and the last digit is check digit.



\*\* Transmit Check  
【Pro CMD: 0401040】



Do Not Transmit Check  
【Pro CMD: 0401030】

### 2 Digits Addenda Code

Addenda Code is the one to the right of an ordinary code. Picture below shows an ordinary code with a 2 digits Addenda Code. The left one in blue lines is an ordinary code. The right one in red lines is the 2 digits Addenda Code.



Code Programming ON



Code Programming OFF



\*\* Disable 2 Digits Addenda Code  
【Pro CMD: 0401050】



Enable 2 Digits Addenda Code  
【Pro CMD: 0401060】

### 5 Digits Addenda Code

5 Digits Addenda Code is the one to the right of an ordinary code. Picture below shows an ordinary code with a 5 digits Addenda Code. The left one in blue lines is an ordinary code. The right one in red lines is the 5 digits Addenda Code.



\*\* Disable 5 Digits Addenda Code  
【Pro CMD: 0401070】



Enable 5 Digits Addenda Code  
【Pro CMD: 0401080】



“ Enable 2 Digits Addenda Code “ — read an ordinary code and 2 digits Addenda Code.  
“ Enable 5 Digits Addenda Code “ — read an ordinary code and 5 digits Addenda Code.  
“ Disable 2 Digits Addenda Code “ — read an ordinary code only, and ignore 2 digits Addenda Code.



EAN-8 expand to EAN-13

Expand EAN-8 to EAN-13, by adding 5 bytes of “0” to the left, and then transmit.

**Code Programming ON**



**Code Programming OFF**



**\*\* Do Not Expand to EAN-13**

**【Pro CMD: 0401090】**



**Expand to EAN-13**

**【Pro CMD: 0401100】**



# Symbols

## EAN-13



Load Factory Default



**\*\* Load EAN-13 Factory Default**  
**【Pro CMD: 0402000】**

**Code Programming ON**



**Code Programming OFF**



Disable/EnableEAN-13



**\*\* Enable EAN-13**  
**【Pro CMD: 0402020】**



**Disable EAN-13**  
**【Pro CMD: 0402010】**

Check Digit



**\*\* Transmit Check**  
**【Pro CMD: 0402040】**



**Do Not Transmit Check**  
**【Pro CMD: 0402030】**

### 2 Digits Addenda Code

Addenda Code is the one to the right of an ordinary code. Picture below shows an ordinary code with a 2 digits Addenda Code. The left one in blue lines is an ordinary code. The right one in red lines is the 2 digits Addenda Code.



Code Programming ON



Code Programming OFF



\*\* Disable 2 Digits Addenda Code  
【Pro CMD: 0402050】



Enable 2 Digits Addenda Code  
【Pro CMD: 0402060】

### 5 Digits Addenda Code

5 Digits Addenda Code is the one to the right of an ordinary code. Picture below shows an ordinary code with a 5 digits Addenda Code. The left one in blue lines is an ordinary code. The right one in red lines is the 5 digits Addenda Code.



\*\* Disable 5 Digits Addenda Code  
【Pro CMD: 0402070】



Enable5 Digits Addenda Code  
【Pro CMD: 0402080】



“ Enable 2 Digits Addenda Code “ — read an ordinary code and 2 digits Addenda Code.  
“ Enable 5 Digits Addenda Code “ — read an ordinary code and 5 digits Addenda Code.  
“Disable 2 Digits Addenda Code “ — read an ordinary code only, and ignore 2 digits Addenda Code.

# Symbols

## UPC-E



Load Factory Default



\*\* Load UPC-E Factory Default  
【Pro CMD: 0403000】

Code Programming ON



Code Programming OFF



Disable/Enable UPC-E



\*\* Enable UPC-E  
【Pro CMD: 0403020】



Disable UPC-E  
【Pro CMD: 0403010】



When the engine can not read UPC-E, please read “Enable UPC-E” and try again.

Check Digit

UPC-E is fixed 8 digits barcode and the last digit is check digit.



\*\* Transmit Check  
【Pro CMD: 0403040】



Do Not Transmit Check  
【Pro CMD: 0403030】



### 2 Digits Addenda Code

Addenda Code is the one to the right of an ordinary code. Picture below shows an ordinary code with a 2 digits Addenda Code. The left one in blue lines is an ordinary code. The right one in red lines is the 2 digits Addenda Code.



Code Programming ON



Code Programming OFF



\*\* Abort 2 Digits Addenda

【Pro CMD: 0403050】



Enable 2 Digits Addenda Code

【Pro CMD: 0403060】

### 5 Digits Addenda Code

5 Digits Addenda Code is the one to the right of an ordinary code. Picture below shows an ordinary code with a 5 digits Addenda Code. The left one in blue lines is an ordinary code. The right one in red lines is the 5 digits Addenda Code.



\*\* Disable 5 Digits Addenda Code

【Pro CMD: 0403070】



Enable 5 Digits Addenda Code

【Pro CMD: 0403080】



“ Enable 2 Digits Addenda Code “ — read an ordinary code and 2 digits Addenda Code.  
 “ Enable 5 Digits Addenda Code “ — read an ordinary code and 5 digits Addenda Code.  
 “Disable 2 Digits Addenda Code “ — read an ordinary code only, and ignore 2 digits Addenda Code.



### Transmit Default “0”

The first byte of UPC-E is default to “0” .

Code Programming ON



Code Programming OFF



**\*\* Do Not Transmit “0”**  
**【Pro CMD: 0403090】**



**Transmit “0”**  
**【Pro CMD: 0403100】**

### UPC-E Expand to UPC-A

Follow the standard algorithm to expand UPC-E to UPC-A.



**\*\*Do Not Expand to UPC-A**  
**【Pro CMD: 0403110】**



**Expand to UPC-A**  
**【Pro CMD: 0403120】**

# Symbols

## UPC-A



Load Factory Default



\*\* Load UPC-A Factory Default  
【Pro CMD: 0404000】

Code Programming ON



Code Programming OFF



Disable/Enable UPC-A



\*\* Enable UPC-A  
【Pro CMD: 0404020】



Disable UPC-A  
【Pro CMD: 0404010】



When the engine can not read UPC-A, please read “Enable UPC-A” and try again.

Check Digit

UPC-A is fixed 13 digits barcode and the last digit is Check Digit.



\*\*Transmit Check  
【Pro CMD: 0404040】



(Do) Not Transmit Check  
【Pro CMD: 0404030】

2 Digits Addenda Code

Addenda Code is the one to the right of an ordinary code. Picture below shows an ordinary code with a 2 digits Addenda Code. The left one in blue lines is an ordinary code. The right one in red lines is the 2 digits Addenda Code.



Code Programming ON



Code Programming OFF



\*\* Disable 2 Digits Addenda Code  
【Pro CMD: 0404050】



Enable 2 Digits Addenda Code  
【Pro CMD: 0404060】

5 Digits Addenda Code

5 Digits Addenda Code is the one to the right of an ordinary code. Picture below shows an ordinary code with a 5 digits Addenda Code. The left one in blue lines is an ordinary code. The right one in red lines is the 5 digits Addenda Code.



\*\* Disable 5 Digits Addenda Code  
【Pro CMD: 0404070】



Enable 5 Digits Addenda Code  
【Pro CMD: 0404080】



-----  
“ Enable 2 Digits Addenda Code “ — read an ordinary code and 2 digits Addenda Code.  
“ Enable 5 Digits Addenda Code “ — read an ordinary code and 5 digits Addenda Code.  
“Disable 2 Digits Addenda Code “ — read an ordinary code only, and ignore 2 digits  
Addenda Code.  
-----

# Symbols

## UPC-A



## Tools

### Transmit Default “0”

The first byte of UPC-A is default to “0” .

#### Code Programming ON



#### Code Programming OFF



\*\*Do Not Transmit “0”

【Pro CMD: 0404090】



Transmit “0”

【Pro CMD: 0404100】



UPC-A has the default “0” but it is not printed out, unlike UPC-E. Read “Transmit 0” will add a “0” to transmit.





Load Factory Default



\*\* Load Interleaved 2 of 5 Factory Default  
【Pro CMD: 0405000】

Code Programming ON



Code Programming OFF



Disable/Enable Interleaved 2 of 5



\*\* Enable Interleaved 2 of 5  
【Pro CMD: 0405020】



Disable Interleaved 2 of 5  
【Pro CMD: 0405010】



-----  
When the engine can not read Interleaved 2 of 5, please read “Enable Interleaved 2 of 5”  
and try again  
-----



### Select Message Length

It is used to program the valid reading length of Interleaved 2 of 5. The engine will not send barcode message to the Host, if the decoded data length does not match the valid length.

Interleaved 2 of 5 Message Length is defined by “Min. Message Length” and “Max. Message Length”

Code Programming ON



Code Programming OFF



Min Message Length (default: 6)  
【Pro CMD: 0405030】



Max Message Length (default: 80)  
【Pro CMD: 0405040】



1D bar code Message Length should not exceed 127 bytes. If Max Message Length is less than Min Message Length, it means the engine will only support barcodes of the two lengths. If Max Message Length is equal to Min Message Length, the engine will only support barcodes of the length.

## Example

To set Min Message Length of Interleaved 2 of 5 as 8 bytes, and Max Message length as 12 bytes, read these programming codes:

1. “Code Programming ON”
2. “Select Min Message Length”
3. Digit Code “8” , see Digit Code Appendix (Pxxx)
4. “Save Programming” , see Digit Code Appendix (Pxxx)
5. “Select Max Message Length”
6. Digit Code “1”
7. Digit Code “2”
8. “Save Programming”
9. “Code Programming OFF”

### Check Digit

Interleaved 2 of 5 may include Check Digit (not compulsory) following its barcode messages. It verifies the barcode message.

» “NO Check, Transmit All” means to read without check and transmit all bytes including barcode message and Check digit.

» “Check, Do Not Transmit Check Digit” means to read and check. If verification is successful, transmits barcode message; if not, engine will not send barcode message to the Host.

» “Check, Transmit All” means to read and check. If verification is successful, transmits all messages; if not, engine will not send barcode message to the Host.

**Code Programming ON**



**Code Programming OFF**



The number of Interleaved 2 of 5 barcode bits(check digit contained) must be even. If it is odd, a 0 will be added as the first digit. The check digit generates automatically when a barcode is produced.



**\*\* NO Check, Transmit All**  
**【Pro CMD: 0405050】**



**Check, Do Not Transmit Check Digit**  
**【Pro CMD: 0405060】**



**Check, Transmit All**  
**【Pro CMD: 0405070】**



When “Check, Do Not Transmit Check digit” is enabled and barcode message length minus one is less than Min Message Length, it will lead to an error.  
E.g.: Reading a 4-byte (include check Digit) Interleaved 2 of 5 with the Min Message Length being 4 bytes and “Check, Do Not Transmit Check digit” enabled leads to an error.

### Specified Lengths

Program the engine to read specified lengths or ranges of specified lengths for Interleaved 2 of 5. The length value must be 3 decimal digits. And the length value **MUST** be an even number between 2 to 64.

Read “Enable Specified Length” to enable this feature or “Disable Specified Length” to disable.



\*\* Disable Specified Length  
【Pro CMD: 0405140】



Enable Specified Length  
【Pro CMD: 0405150】



Add Code Length  
【Pro CMD: 0405160】



Remove Code Length  
【Pro CMD: 0405170】

**Code Programming ON**



**Code Programming OFF**



## Example

The engine only read Interleaved 2 of 5 which are 12 and 24 bytes.

1. “Code Programming ON”
2. “Enable Specified Length”
3. “Add Code Length”
4. Digit Code “0”, “1”, “2”
5. “Save Programming”
6. “Add code length”
7. Digit Code “0”, “2”, “4”
8. “Save Programming”
9. “Code Programming OFF”

The engine only read Interleaved 2 of 5 between 12 bytes and 24 bytes.

1. “Code Programming ON”
2. “Enable Specified Length”
3. “Add Code Length”
4. Digit Code “0”, “1”, “2”
5. Digit Code “0”, “2”, “4”
6. “Save Programming”
7. “Code Programming OFF”



ITF-14 is a fixed length, 14 bytes Interleaved 2 of 5 barcode with Check digit. By factory default, it is disabled.

When enabled, ITF-14 precedes 14-byte Interleaved 2 of 5 barcode.

Code Programming ON



Code Programming OFF



\*\*Disable ITF-14

【Pro CMD: 0405080】



Enable ITF-14, Do Not Transmit Check Digit

【Pro CMD: 0405090】



Enable ITF-14, Transmit Check Digit

【Pro CMD: 0405100】



For instance, when ITF-14 is enabled and Interleaved 2 of 5 is disabled, the ITF-14 and 14 bytes Interleaved 2 of 5 with check digit can be read, but other Interleaved 2 of 5 can not.



ITF-6 is a fixed length 6 bytes Interleaved 2 of 5 barcode with check digit.  
When enabled, ITF-6 precedes 6-byte Interleaved 2 of 5 barcode.

Code Programming ON



Code Programming OFF



\*\*Disable ITF-6 User Selection

【Pro CMD: 0405110】



ITF-6, Read, Do Not Transmit Check Digit

【Pro CMD: 0405120】



ITF-6, Read, Transmit Check Digit

【Pro CMD: 0405130】



For instance, when ITF-6 is enabled and Interleaved 2 of 5 is disabled, the ITF-6 and 6 bytes Interleaved 2 of 5 with check digit can be read, but other Interleaved 2 of 5 can not

# Symbols

## Code 39



## Tools

Load Factory Default



\*\* Load Code 39 Factory Default  
【Pro CMD: 0408000】

Code Programming ON



Code Programming OFF



Enable/Disable Code 39



\*\* Enable Code 39  
【Pro CMD: 0408020】



Disable Code 39  
【Pro CMD: 0408010】



When the engine can not read Code 39, please read “Enable Code 39” and try again

Transmit Start & Stop Character

Transmission of “\*” can be selected.



\*\*Transmit Both “\*”  
【Pro CMD: 0408090】



Transmit Neither “\*”  
【Pro CMD: 0408080】



### Select Message Length

It is used to program the valid reading length of Code 39. The engine will not send barcode message to the Host, if the decoded data length does not match the valid length.

Code 39 Message Length is defined by “Min. Message Length” and “Max. Message Length”.

Code Programming ON



Code Programming OFF



Min Message Length (default: 1)

【Pro CMD: 0408030】



Max Message Length (default: 48)

【Pro CMD: 0408040】



1D bar code Message Length should not exceed 127 bytes. If Max Message Length is less than Min Message Length, it means the engine will only support barcodes of the two lengths. If Max Message Length is equal to Min Message Length, the engine will only support barcodes of the length.

## Example

To set Min Message Length of Code 39 to 8 bytes, and Max Message Length to 12 bytes, read these programming codes:

1. “Code Programming ON”
2. “Select Min Message Length”
3. Digit Code “8”, see Digit Code
4. “Save Programming”, see Digit Code
5. “Select Max Message Length”
6. Digit Code “1”
7. Digit Code “2”
8. “Save Programming”
9. “Code Programming OFF”





### Check Digit

Code 39 may include Check Digit (not compulsory) following its barcode message. It verifies the barcode message.

» "NO Check, Transmit All" means to read without check and transmit all bytes including barcode message and Check Digit.

» "Check, Do Not Transmit Check Digit" means to read and check. If verification is successful, transmits barcode message; if not, engine will not send barcode message to the Host.

» "Check, Transmit All" means to read and check. If verification is successful, transmits all messages; if not, engine will not send barcode message to the Host.

**Code Programming ON**



**Code Programming OFF**



**\*\* NO Check, Transmit All**  
**【Pro CMD: 0408050】**



**Check, Do not transmit Check Digit**  
**【Pro CMD: 0408060】**



**Check, Transmit All**  
**【Pro CMD: 0408070】**



When "Check, Do not Transmit Check digit" is enabled and barcode message length minus one is less than Min Message Length, it will lead to an error.

E.g.: Reading a 4-byte (include check byte) Code 39 with the Min Message Length being 4 bytes and "Check, Do not transmit Check Digit" enabled leads to an error.

### Decode ASCII

Code 39 can include full ASCII characters. For factory default, the engine only decodes part of them. Read "Full ASCII decode" to decode full ASCII characters.



**\*\*Partial ASCII Decode**  
**【Pro CMD: 0408100】**



**Full ASCII Decode**  
**【Pro CMD: 0408110】**



Load Factory Default



**\*\* Load Codabar Factory Default**  
**【Pro CMD: 0409000】**

**Code Programming ON**



**Code Programming OFF**



Enable/Disable Codabar



**\*\* Enable Codabar**  
**【Pro CMD: 0409020】**



**Disable Codabar**  
**【Pro CMD: 0409010】**



When the engine can not read Codabar, please read “Enable Codabar” and try again.

### Select Message Length

It is used to program the valid reading length of Codabar. The engine will not send barcode message to the Host, if the decoded data length does not match the valid length.

Codabar Message Length is defined by “Min. Message Length” and “Max. Message Length”.

Code Programming ON



Code Programming OFF



Min Message Length (default: 2)  
【Pro CMD: 0409030】



Max Message Length (default: 60)  
【Pro CMD: 0409040】



1D bar code Message Length should not exceed 127 bytes. If Max Message Length is less than Min Message Length, it means the engine will only support barcodes of the two lengths. If Max Message Length is equal to Min Message Length, the engine will only support barcodes of the length.

### Check Digit

Codabar may include Check Digit (not compulsory) following its barcode message. It verifies the barcode message.

» "NO Check, Transmit All" means to read without check and transmit all bytes including barcode message and Check Digit.

» "Check, Do Not Transmit Check Digit" means to read and check. If verification is successful, transmits barcode message; if not, engine will not send barcode message to the Host.

» "Check, Transmit All" means to read and check. If verification is successful, transmits all messages; if not, engine will not send barcode message to the Host.

Code Programming ON



Code Programming OFF



\*\* NO Check, Transmit All  
【Pro CMD: 0409050】



Check, Transmit All  
【Pro CMD: 0409070】



Check, Do not transmit Check Digit  
【Pro CMD: 0409060】



When "Check, Do not Transmit Check digit" is enabled and barcode message length minus one is less than Min Message Length, it will lead to an error.  
E.g.: Reading a 4-byte (include check byte) Codabar with the Min Message Length being 4 bytes and "Check, Do not transmit Check Digit" enabled leads to an error.



### Transmit Start & Stop Character

Codabar uses either one of “A”, “B”, “C” and “D” as the start character and the stop character. Transmission of them can be selected.

Code Programming ON



Code Programming OFF



\*\*Transmit Both Start & Stop Character  
【Pro CMD: 0409090】



Transmit Neither Start & Stop Character  
【Pro CMD: 0409080】



\*\*Use ABCD/ABCD As Start & Stop Character  
【Pro CMD: 0409100】



\*\*Use Upper Letter  
【Pro CMD: 0409120】



Use ABCD/TN\*E As Start & Stop Character  
【Pro CMD: 0409110】



Use Lower Letter  
【Pro CMD: 0409130】

Load Factory Default



\*\* Load Code 93 Factory Default  
【Pro CMD: 0410000】

Code Programming ON



Code Programming OFF



Enable /Disable Code 93



\*\* Disable Code 93  
【Pro CMD: 0410010】



Enable Code 93  
【Pro CMD: 0410020】



When the engine can not read Code 93, please read “Enable Code 93” and try again.



### Select Message Length

It is used to program the valid reading length of Code 93. The engine will not send barcode message to the Host, if the decoded data length does not match the valid length.

Code 93 Message Length is defined by “Min. Message Length” and “Max. Message Length.”

Code Programming ON



Code Programming OFF



Min Message Length (default: 1)

【Pro CMD: 0410030】



Max Message Length (default: 48)

【Pro CMD: 0410040】



1D bar code Message Length should not exceed 127 bytes. If Max Message Length is less than Min Message Length, it means the engine will only support barcodes of the two lengths. If Max Message Length is equal to Min Message Length, the engine will only support barcodes of the length.

## Example

To set Min Message Length of Code 93 to 8 bytes and Max Message Length to 12 bytes, read these programming codes:

1. “Code Programming ON”
2. “Select Min Message Length”
3. Digit Code “8”, see Digit Code
4. “Save Programming”, see Digit Code
5. “Select Max Message Length”
6. Digit Code “1”
7. Digit Code “2”
8. “Save Programming”
9. “Code Programming OFF”

### Check Digit

Code 93 may include Check Digits (not compulsory) following its barcode message. The two digits verify the barcode message.

» "NO Check, Transmit All" means to read without check and transmit all bytes including barcode message and Check Digits.

» "Check, Do Not Transmit Check Digit" means to read and check. If verification is successful, transmits barcode message; if not, engine will not send barcode message to the Host.

» "Check, Transmit All" means to read and check. If verification is successful, transmits all messages; if not, engine will not send barcode message to the Host.

Code Programming ON



Code Programming OFF



NO Check, Transmit All  
【Pro CMD: 0410050】



Check, Transmit All  
【Pro CMD: 0410070】



\*\* Check, Do not transmit Check Digit  
【Pro CMD: 0410060】



When "Check, Do not Transmit Check digit" is enabled and barcode message length minus one is less than Min Message Length, it will lead to an error.  
E.g.: Reading a 4-byte (include check byte) Code 93 with the Min Message Length being 4 bytes and "Check, Do not transmit Check Digit" enabled leads to an error.



Load Factory Default



\*\* Load UCC/EAN-128 Factory Default  
【Pro CMD: 0412000】

Code Programming ON



Code Programming OFF



Enable/Disable UCC/EAN-128



\*\* Enable UCC/EAN-128  
【Pro CMD: 0412020】



Disable UCC/EAN-128  
【Pro CMD: 0412010】



When the engine can not read UCC/EAN-128, please read “Enable UCC/EAN-128” and try again.

# Symbols

## GS1 Databar



Load Factory Default



**\*\* Load GS1 Databar Factory Default**  
**【Pro CMD: 0413000】**

**Code Programming ON**



**Code Programming OFF**



Enable/Disable GS1 Databar



**\*\* Enable GS1 Databar**  
**【Pro CMD: 0413020】**



**Disable GS1 Databar**  
**【Pro CMD: 0413010】**



When the engine can not read GS1 Databar, please read “Enable GS1 Databar” and try again.

Transmit AI(01) Character



**\*\* Transmit AI(01) Character**  
**【Pro CMD: 0413060】**



**Do not Transmit AI(01) Character**  
**【Pro CMD: 0413050】**

# Symbols

## EAN·UCC Composite



Load Factory Default



\*\* Load EAN·UCC Composite Factory Default  
【Pro CMD: 0414000】

Code Programming ON



Code Programming OFF



Enable/Disable EAN·UCC Composite



Enable EAN·UCC Composite  
【Pro CMD: 0414020】



\*\* Disable EAN·UCC Composite  
【Pro CMD: 0414010】



Enable UPC/EAN Composite  
【Pro CMD: 0414040】



\*\* Disable UPC/EAN Composite  
【Pro CMD: 0414030】



When the engine can not read EAN·UCC Composite, please read “Enable EAN·UCC Composite” and try again.

# Symbols

## Code 11



## Tools

Load Factory Default



**\*\* Load Code 11 Factory Default**  
**【Pro CMD: 0415000】**

**Code Programming ON**



**Code Programming OFF**



Enable/Disable Code 11



**Enable Code 11**  
**【Pro CMD: 0415020】**



**\*\* Disable Code 11**  
**【Pro CMD: 0415010】**



When the engine can not read Code 11, please read “Enable Code 11” and try again.



### Select Message Length

It is used to program the valid reading length of Code 11. The engine will not send barcode message to the Host, if the decoded data length does not match the valid length.

Code 11 Message Length is defined by “Min. Message Length” and “Max. Message Length.”

Code Programming ON



Code Programming OFF



Min Message Length (default: 4)

【Pro CMD: 0415030】



Max Message Length (default: 48)

【Pro CMD: 0415040】



1D bar code Message Length should not exceed 127 bytes. If Max Message Length is less than Min Message Length, it means the engine will only support barcodes of the two lengths. If Max Message Length is equal to Min Message Length, the engine will only support barcodes of the length.

## Example

To set Min Message Length of Code11 to 8 bytes and Max Message Length to 12 bytes, read these programming codes:

1. “Code Programming ON”
2. “Select Min Message Length”
3. Digit Code “8”, see Digit Code
4. “Save Programming”, see Digit Code
5. “Select Max Message Length”
6. Digit Code “1”
7. Digit Code “2”
8. “Save Programming”
9. “Code Programming OFF”

### Check Digit

Code 11 may include Check Digit (not compulsory) following its barcode message. It verifies the barcode message.

- » "NO Check, Transmit All" means to read without check and transmit all bytes including barcode message and Check Digit.
- » "Check, Do Not Transmit Check Digit" means to read and check. If verification is successful, transmits barcode message; if not, engine will not send barcode message to the Host.
- » "Check, Transmit All" means to read and check. If verification is successful, transmits all messages; if not, engine will not send barcode message to the Host.

Code Programming ON



Code Programming OFF



NO Check, Transmit All  
【Pro CMD: 0415050】



\*\* Single Check Digit, MOD11  
【Pro CMD: 0415060】



Double Check Digits, MOD11/MOD11  
【Pro CMD: 0415070】



Double Check Digits, MOD11/MOD9  
【Pro CMD: 0415080】



Single Check Digit MOD11 (Len <= 10)  
Double Check Digits MOD11/MOD11 (Len > 10)  
【Pro CMD: 0415090】



Single Check Digit MOD11 (Len <= 10)  
Double Check Digits MOD11/MOD9 (Len > 10)  
【Pro CMD: 0415100】



Do not transmit Check Digit  
【Pro CMD: 0415110】



\*\* Transmit Check Digit  
【Pro CMD: 0415120】



When "Check, Do not Transmit Check digit" is enabled and barcode message length minus one is less than Min Message Length, it will lead to an error.  
E.g.: Reading a 4-byte (include check byte) Code 11 with the Min Message Length being 4 bytes and "Check, Do not transmit Check Digit" enabled leads to an error.

# Symbols

## ISBN



### Load Factory Default



\*\* Load ISBN Factory Default  
【Pro CMD: 0416000】

### Code Programming ON



### Code Programming OFF



### Enable/Disable ISBN



Enable ISBN  
【Pro CMD: 0416020】



\*\* Disable ISBN  
【Pro CMD: 0416010】



When the engine can not read ISBN, please read “Enable ISBN” and try again.

### Transmit



\*\* Transmit 13 digits  
【Pro CMD: 0416030】



Transmit 10 digits  
【Pro CMD: 0416040】

Load Factory Default

Code Programming ON



\*\* Load Industrial 2 of 5 Factory Default  
【Pro CMD: 0417000】

Code Programming OFF



Enable/Disable Industrial 2 of 5



Enable Industrial 2 of 5  
【Pro CMD: 0417020】



\*\* Disable Industrial 2 of 5  
【Pro CMD: 0417010】



When the engine can not read Industrial 2 of 5, please read “Enable Industrial 2 of 5” and try again.





### Select Message Length

It is used to program the valid reading length of Industrial 25. The engine will not send barcode message to the Host, if the decoded data length does not match the valid length.

Industrial 2 of 5 Message Length is defined by “Min. Message Length” and “Max. Message Length.”

Code Programming ON



Code Programming OFF



Min Message Length (default: 6)  
【Pro CMD: 0417030】



Max Message Length (default: 48)  
【Pro CMD: 0417040】



1D bar code Message Length should not exceed 127 bytes. If Max Message Length is less than Min Message Length, it means the engine will only support barcodes of the two lengths. If Max Message Length is equal to Min Message Length, the engine will only support barcodes of the length.

### Example

To set Min Message Length of Industrial 25 to 8 bytes and Max Message Length to 12 bytes, read these programming codes:

1. “Code Programming ON”
2. “Select Min Message Length”
3. Digit Code “8”, see Digit Code
4. “Save Programming”, see Digit Code
5. “Select Max Message Length”
6. Digit Code “1”
7. Digit Code “2”
8. “Save Programming”
9. “Code Programming OFF”



### Check Digit

Industrial 25 may include Check Digit (not compulsory) following its barcode message. It verifies the barcode message.

- » "NO Check, Transmit All" means to read without check and transmit all bytes including barcode message and Check Digit.
- » "Check, Do Not Transmit Check Digit" means to read and check. If verification is successful, transmits barcode message; if not, engine will not send barcode message to the Host.
- » "Check, Transmit All" means to read and check. If verification is successful, transmits all messages; if not, engine will not send barcode message to the Host.

Code Programming ON



Code Programming OFF



\*\* NO Check, Transmit All  
【Pro CMD: 0417050】



Check, Transmit All  
【Pro CMD: 0417070】



Check, Do Not Transmit Check Digit  
【Pro CMD: 0417060】



When "Check, Do not Transmit Check digit" is enabled and barcode message length minus one is less than Min Message Length, it will lead to an error.  
E.g.: Reading a 4-byte (include check byte) Industrial 25 with the Min Message Length being 4 bytes and "Check, Do not transmit Check Digit" enabled leads to an error.

# Symbols

## Standard 2 of 5



Tools

Load Factory Default



\*\* Load Standard 2 of 5 Factory Default  
【Pro CMD: 0418000】

Code Programming ON



Code Programming OFF



Enable/Disable Standard 2 of 5



Enable Standard 2 of 5  
【Pro CMD: 0418020】



\*\* Disable Standard 2 of 5  
【Pro CMD: 0418010】



When the engine can not read Standard 2 of 5, please read “Enable Standard 2 of 5” and try again.



### Select Message Length

It is used to program the valid reading length of Standard 2 of 5. The engine will not send barcode message to the Host, if the decoded data length does not match the valid length.

Standard 2 of 5 Message Length is defined by “Min. Message Length” and “Max. Message Length.”

Code Programming ON



Code Programming OFF



Min Message Length (default: 6)  
【Pro CMD: 0418030】



Max Message Length (default: 48)  
【Pro CMD: 0418040】



1D bar code Message Length should not exceed 127 bytes. If Max Message Length is less than Min Message Length, it means the engine will only support barcodes of the two lengths. If Max Message Length is equal to Min Message Length, the engine will only support barcodes of the length.



To set Min Message Length of Standard 2 of 5 to 8 bytes and Max Message Length to 12 bytes, read these programming codes:

1. “Code Programming ON”
2. “Select Min Message Length”
3. Digit Code “8”, see Digit Code
4. “Save Programming”, see Digit Code
5. “Select Max Message Length”
6. Digit Code “1”
7. Digit Code “2”
8. “Save Programming”
9. “Code Programming OFF”

### Check Digit

Standard 2 of 5 may include Check Digit (not compulsory) following its barcode message. It verifies the barcode message.

- » "NO Check, Transmit All" means to read without check and transmit all bytes including barcode message and Check Digit.
- » "Check, Do Not Transmit Check Digit" means to read and check. If verification is successful, transmits barcode message; if not, engine will not send barcode message to the Host.
- » "Check, Transmit All" means to read and check. If verification is successful, transmits all messages; if not, engine will not send barcode message to the Host.

Code Programming ON



Code Programming OFF



\*\* NO Check, Transmit All  
【Pro CMD: 0418050】



Check, Transmit All  
【Pro CMD: 0418070】



Check, Do Not Transmit Check Digit  
【Pro CMD: 0418060】



When "Check, Do not Transmit Check digit" is enabled and barcode message length minus one is less than Min Message Length, it will lead to an error.  
E.g.: Reading a 4-byte (include check byte) Industrial 25 with the Min Message Length being 4 bytes and "Check, Do not transmit Check Digit" enabled leads to an error.

# Symbols

Plessey



Tools

Load Factory Default



\*\* Load Plessey Factory Default  
【Pro CMD: 0419000】

Code Programming ON



Code Programming OFF



Enable/Disable Plessey



Enable Plessey  
【Pro CMD: 0419020】



\*\* Disable Plessey  
【Pro CMD: 0419010】



When the engine can not read Plessey, please read “Enable Plessey” and try again.



### Select Message Length

It is used to program the valid reading length of Plessey. The engine will not send barcode message to the Host, if the decoded data length does not match the valid length.

Plessey Message Length is defined by “Min. Message Length” and “Max. Message Length.”

Code Programming ON



Code Programming OFF



Min Message Length (default: 4)  
【Pro CMD: 0419030】



Max Message Length (default:48)  
【Pro CMD: 0419040】



1D bar code Message Length should not exceed 127 bytes. If Max Message Length is less than Min Message Length, it means the engine will only support barcodes of the two lengths. If Max Message Length is equal to Min Message Length, the engine will only support barcodes of the length.

## Example

To set Min Message Length of Plessey to 8 bytes and Max Message Length to 12 bytes, read these programming codes:

1. “Code Programming ON”
2. “Select Min Message Length”
3. Digit Code “8”, see Digit Code
4. “Save Programming”, see Digit Code
5. “Select Max Message Length”
6. Digit Code “1”
7. Digit Code “2”
8. “Save Programming”
9. “Code Programming OFF”



### Check Digit

Plessey may include Check Digits (not compulsory) following its barcode message. The two digits verify the barcode message.

- » "NO Check, Transmit All" means to read without check and transmit all bytes including barcode message and Check Digits.
- » "Check, Do Not Transmit Check Digit" means to read and check. If verification is successful, transmits barcode message; if not, engine will not send barcode message to the Host.
- » "Check, Transmit All" means to read and check. If verification is successful, transmits all messages; if not, engine will not send barcode message to the Host.

Code Programming ON



Code Programming OFF



NO Check, Transmit All  
【Pro CMD: 0419050】



\*\* Check, Transmit All  
【Pro CMD: 0419070】



Check, Do Not Transmit Check Digit  
【Pro CMD: 0419060】



-----  
When "Check, Do not Transmit Check digit" is enabled and barcode message length minus one is less than Min Message Length, it will lead to an error.  
E.g.: Reading a 4-byte (include check byte) Plessey with the Min Message Length being 4 bytes and "Check, Do not transmit Check Digit" enabled leads to an error.  
-----





### Load Factory Default



\*\* Load MSI-Plessey Factory Default  
【Pro CMD: 0420000】

### Code Programming ON



### Code Programming OFF



### Enable/Disable MSI-Plessey



Enable MSI-Plessey  
【Pro CMD: 0420020】



\*\* Disable MSI-Plessey  
【Pro CMD: 0420010】



When the engine can not read MSI-Plessey, please read “Enable MSI-Plessey” and try again.



### Select Message Length

It is used to program the valid reading length of MSI-Plessey. The engine will not send barcode message to the Host, if the decoded data length does not match the valid length.

MSI-Plessey Message Length is defined by “Min. Message Length” and “Max. Message Length.”

Code Programming ON



Code Programming OFF



Min Message Length (default: 4)

【Pro CMD: 0420030】



Max Message Length (default:48)

【Pro CMD: 0420040】



1D bar code Message Length should not exceed 127 bytes. If Max Message Length is less than Min Message Length, it means the engine will only support barcodes of the two lengths. If Max Message Length is equal to Min Message Length, the engine will only support barcodes of the length.

### Example

To set Min Message Length of MSI-Plessey to 8 bytes and Max Message Length to 12 bytes, read these programming codes:

1. “Code Programming ON”
2. “Select Min Message Length”
3. Digit Code “8”, see Digit Code
4. “Save Programming”, see Digit Code
5. “Select Max Message Length”
6. Digit Code “1”
7. Digit Code “2”
8. “Save Programming”
9. “Code Programming OFF”

## Check Digit

Plessey may include Check Digits(s) (not compulsory) following its barcode message. It may have one or two digits, which verify the barcode message.

» "NO Check, Transmit All" means to read without check and transmit all bytes including barcode message and Check Digits.

Code Programming ON



Code Programming OFF



NO Check, Transmit All  
【Pro CMD: 0420050】



Double Check Digits, MOD10/MOD11  
【Pro CMD: 0420080】



\*\* Single Check Digit, MOD10  
【Pro CMD: 0420060】



NO Transmit Check Digits  
【Pro CMD: 0420090】



Double Check Digits, MOD10/MOD10  
【Pro CMD: 0420070】



\*\* Transmit Check Digits  
【Pro CMD: 0420100】



When "Check, Do not Transmit Check digit" is enabled and barcode message length minus one is less than Min Message Length, it will lead to an error.  
E.g.: Reading a 4-byte (include check byte) MSI-Plessey with the Min Message Length being 4 bytes and "Check, Do not transmit Check Digit" enabled leads to an error.



Load Factory Default

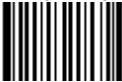


\*\* Load PDF417 Factory  
【Pro CMD: 0501000】

Code Programming ON



Code Programming OFF



Enable/Disable PDF417



\*\* Enable PDF417  
【Pro CMD: 0501020】



Disable PDF417  
【Pro CMD: 0501010】



When the engine can not read PDF417, please read “Enable PDF417” and try again.

## Select Message Length

It is used to program the valid reading length of PDF417. The engine will not send barcode message to the Host, if the decoded data length does not match the valid reading length.

PDF417 Message Length is defined by "Min. Message Length" and "Max. Message Length".

Code Programming ON



Code Programming OFF



Min Message Length (default: 1)  
【Pro CMD: 0501030】



Max Message Length (default: 2710)  
【Pro CMD: 0501040】



2D bar code Message Length should not exceed 65535 bytes.

Max Message Length should not be less than Min Message Length.

To read a fixed length PDF417, Please program Max & Min Message Length to the same value.



To set Min Message Length of PDF417 to 8 bytes and Max Message Length to 12 bytes, read these programming codes:

1. "Code Programming ON"
2. "Select Min Message Length"
3. Digit Code "8", see Digit Code
4. "Save Programming", see Digit Code
5. "SelectMax Message Length"
6. Digit Code "1"
7. Digit Code "2"
8. "Save Programming"
9. "Code Programming OFF"

### PDF417 Twin Code

PDF417 twin code is 2 PDF417 barcodes paralleled vertically or horizontally. They must have the same direction. Their specifications must be similar and the distance between them must be short.

There are 3 options for reading PDF417 twin code:

- » Single PDF417 Only: Read either PDF417 code.
- » Twin PDF417 Only: Read both PDF417 codes. The transmission sequence is: left (upper) PDF417 code followed by right (lower) PDF417 code.
- » Both Single & Twin: Read both PDF417 codes. If successful, transmit as twin PDF417 only. Otherwise, try single PDF417 only.

Code Programming ON



Code Programming OFF



\*\* Single PDF417 Only  
【Pro CMD: 0501070】



Both Single & Twin  
【Pro CMD: 0501090】



Twin PDF417 Only  
【Pro CMD: 0501080】

### Forward/Positive Direction PDF 417

PDF 417 has forward or positive direction.

Forward Direction Barcode: Light colour ground, Deep colour bars.

Positive Direction Barcode: Deep colour ground, Light colour bars.



\*\* Forward Direction Barcode Only  
【Pro CMD: 0501320】



Both  
【Pro CMD: 0501322】



Positive Direction Barcode Only  
【Pro CMD: 0501321】

# Symbols

## QR Code



## Tools

Load Factory Default



\*\* Load QR Code Factory Default  
【Pro CMD: 0502000】

Code Programming ON



Code Programming OFF



Enable/Disable QR Code



\*\* Enable QR Code  
【Pro CMD: 0502020】



Disable QR Code  
【Pro CMD: 0502010】



When the engine can not read QR Code, please read “Enable QR Code” and try again.

### Select Message Length

It is used to program the valid reading length of QR Code. The engine will not send barcode message to the Host, if the decoded data length does not match the valid length.

QR Code Message Length is defined by "Min. Message Length" and "Max. Message Length".

Code Programming ON



Code Programming OFF



Min Message Length (default: 1)  
【Pro CMD: 0502030】



Max Message Length (default: 7089)  
【Pro CMD: 0502040】



2D bar code Message Length should not exceed 65535 bytes.  
Max Message Length should not be less than Min Message Length.  
To read a fixed length QR Code, Please program Max & Min Message Length to the same value



- To set Min Message Length of QR Code to 8 bytes and Max Message Length to 12 bytes, read these programming codes:
1. "Code Programming ON"
  2. "Select Min Message Length"
  3. Digit Code "8", see Digit Code
  4. Save Programming", see Digit Code
  5. Select Max Message Length"
  6. Digit Code "1"
  7. Digit Code "2"
  8. "Save Programming"
  9. "Code Programming OFF"





### QR Twin Code

QR twin code is 2 QR barcodes paralleled vertically or horizontally. They must have the same direction. Their specifications must be similar and the distance between them must be short.

There are 3 options for reading QR twin code:

- » Single QR Only: Read either QR code.
- » Twin QR Only: Read both QR codes. The transmission sequence is: left (upper) QR code followed by right (lower) QR code.
- » Both Single & Twin: Read both QR codes. If successful, transmit as twin QR only. Otherwise, try single QR only.

Code Programming ON



Code Programming OFF



\*\*Single QR Only  
【Pro CMD: 0502070】



Twin QR Only  
【Pro CMD: 0502080】



Both Single & Twin  
【Pro CMD: 0502090】

Load Factory Default



\*\* Load Aztec Factory Default  
【Pro CMD: 0503000】

Code Programming ON



Code Programming OFF



Enable/Disable Aztec



Enable Aztec  
【Pro CMD: 0503020】



\*\* Disable Aztec  
【Pro CMD: 0503010】



-----  
When the engine can not read Aztec, please read “Enable Aztec” and try again.  
-----



### Select Message Length

It is used to program the valid reading length of Aztec. The engine will not send barcode message to the Host, if the decoded data length does not match the valid length.

Aztec Message Length is defined by “Min. Message Length” and “Max. Message Length”.

Code Programming ON



Code Programming OFF



Min Message Length (default: 1)

【Pro CMD: 0503030】



Max Message Length (default: 3832)

【Pro CMD: 0503040】



2D bar code Message Length should not exceed 65535 bytes.

Max Message Length should not be less than Min Message Length.

To read a fixed length Aztec, Please program Max & Min Message Length to the same value.

## Example

To set Min Message Length of Aztec to 8 bytes and Max Message Length to 12 bytes, read these programming codes.

1. “Code Programming ON”
2. “Select Min Message Length”
3. Digit Code “8”, see Digit Code
4. Save Programming”, see Digit Code
5. Select Max Message Length”
6. Digit Code “1”
7. Digit Code “2”
8. “Save Programming”
9. “Code Programming OFF”



## Reading Multi-barcodes of an Image

There are three modes:

- » Mode 1: Read one barcode only.
- » Mode 2: Read fixed number of barcodes only.
- » Mode 3: Composite Reading. Read fixed number of barcodes first, if failed, read one barcode only.

Code Programming ON



Code Programming OFF



\*\* Mode 1

【Pro CMD: 0503070】



Mode 3

【Pro CMD: 0503090】



Mode 2

【Pro CMD: 0503080】

The number of Multi-barcodes

Code Programming ON



Code Programming OFF



\*\* 1

【Pro CMD: 0503060】



2

【Pro CMD: 0503061】



3

【Pro CMD: 0503062】



4

【Pro CMD: 0503063】



5

【Pro CMD: 0503064】



6

【Pro CMD: 0503065】



7

【Pro CMD: 0503066】



8

【Pro CMD: 0503067】

Load Factory Default



\*\* Load Data Matrix Factory Default  
【Pro CMD: 0504000】

Code Programming ON



Code Programming OFF



Enable/Disable Data Matrix



\*\* Enable Data Matrix  
【Pro CMD: 0504020】



Disable Data Matrix  
【Pro CMD: 0504010】



When the engine can not read Data Matrix, please read “Enable Data Matrix” and try again.



### Select Message Length

It is used to program the valid reading length of Data Matrix. The engine will not send barcode message to the Host, if the decoded data length does not match the valid reading length.

Data Matrix Message Length is defined by "Min. Message Length" and "Max. Message Length".

Code Programming ON



Code Programming OFF



Min Message Length (default: 1)  
【Pro CMD: 0504030】



Max Message Length (default: 3116)  
【Pro CMD: 0504040】



2D bar code Message Length should not exceed 65535 bytes.

Max Message Length should not be less than Min Message Length.

To read a fixed length Data Matrix, Please program Max & Min Message Length to the same value.

## Example

To set Min Message Length of Data Matrix to 8 bytes and Max Message Length to 12 bytes, read these programming codes.

1. "Code Programming ON"
2. "Select Min Message Length"
3. Digit Code "8", see Digit Code
4. Save Programming", see Digit Code
5. Select Max Message Length"
6. Digit Code "1"
7. Digit Code "2"
8. "Save Programming"
9. "Code Programming OFF"

### Data Matrix Twin Code

Data Matrix twin code is 2 Data Matrix barcodes paralleled vertically or horizontally. They must have the same direction. Their specifications must be similar and the distance between them must be short.

There are 3 options for reading Data Matrix:

- » Single Data Matrix Only: Read either Data Matrix.
- » Twin Data Matrix Only: Read both Data Matrix. The transmission sequence is: left (upper) Data Matrix followed by right (lower) Data Matrix.
- » Both Single & Twin: Read both Data Matrix. If successful, transmit as twin Data Matrix. Otherwise, try single Data Matrix only.

Code Programming ON



Code Programming OFF



\*\*Single Data Matrix Only  
【Pro CMD: 0504070】



Twin Data Matrix Only  
【Pro CMD: 0504080】



Both Single & Twin  
【Pro CMD: 0504090】



# Symbols

## Data Matrix



Tools

### Rectangular Symbols

Code Programming ON



Data Matrix has two formats:

» Square symbols, which has the same amount of models in length and width: 10\*10, 12\*12.... 144\*144.

» Rectangular symbols, which has different amounts of models in length and width: 6\*16;6\*14...14\*22.

Code Programming OFF



\*\* Enable Rectangular Symbols  
【Pro CMD: 0504110】



Disable Rectangular Symbols  
【Pro CMD: 0504100】

### Forward/Positive Direction Data Matrix

Data Matrix has forward or positive direction.

Forward Direction Barcode: Light colour ground, Deep colour bars.

Positive Direction Barcode: Deep colour ground, Light colour bars.



\*\* Forward Direction Barcode Only  
【Pro CMD: 0504320】



Both  
【Pro CMD: 0504322】



Positive Direction Barcode  
【Pro CMD: 0504321】

# Symbols

## Maxicode



## Tools

Load Factory Default



\*\* Load Maxicode Factory Default  
【Pro CMD: 0505000】

Code Programming ON



Code Programming OFF



Enable/Disable Maxicode



Enable Maxicode  
【Pro CMD: 0505020】



\*\* Disable Maxicode  
【Pro CMD: 0505010】



When the engine can not read Maxicode, please read “Enable Maxicode” and try again.



### Select Message Length

It is used to program the valid reading length of Maxicode. The engine will not send barcode message to the Host, if the decoded data length does not match the valid reading length.

Maxicode Message Length is defined by "Min. Message Length" and "Max. Message Length".

Code Programming ON



Code Programming OFF



Min Message Length (default: 1)  
【Pro CMD: 0505030】



Max Message Length (default: 150)  
【Pro CMD: 0505040】



2D bar code Message Length should not exceed 65535 bytes.

Max Message Length should not be less than Min Message Length.

To read a fixed length Maxicode, Please program Max & Min Message Length to the same value.

## Example

To set Min Message Length of Maxicode to 8 bytes and Max Message Length to 12 bytes, read these programming codes.

1. "Code Programming ON"
2. "Select Min Message Length"
3. Digit Code "8", see Digit Code
4. Save Programming", see Digit Code
5. Select Max Message Length"
6. Digit Code "1"
7. Digit Code "2"
8. "Save Programming"
9. "Code Programming OFF"

# OCR

## Introduction

OCR (Optical Character Recognition) is the technology that captures image of printed information, and recognizes the image to editable characters.

The engine supports OCR B standard and specific typefaces, such as:

■ 0 1 2 3 4 5 6 7 8 ■

1. Nine numbers of OCR-B typeface must be included.
2. There must be a space between No.7 and No.8 number.
3. It must start and end with “■”. There must be a space between “■” and a number.



**\*\* Load SPEC\_OCR\_B Factory Default**  
**【Pro CMD: 0600000】**



**\*\* Disable OCR**  
**【Pro CMD: 0600010】**



**Enable OCR**  
**【Pro CMD: 0600020】**

---

# Prefix/Suffix

---

## Introduction

1D barcodes could contain digits, letters and symbols, etc. 2D barcodes could contain more data, such as Chinese characters and other multi-byte characters. However, in reality, they do not and should not have all the information we need, such as barcode type, date and time of scan, delimiter, and so on, in order to keep the code short and flexible.

Prefix and Suffix are how to fulfill the needs mentioned above. They can be added, removed, and modified while the original barcode message is still in tact.



-----  
Barcode processing sequences:

1. Intercept barcode message
  2. Add Prefix/Suffix
  3. Pack
  4. Terminate with Stop Suffix and transmit
-

# Prefix/Suffix

## General Programming



### Disable or Enable Prefix/Suffix

Disable All Prefix/Suffix: Transmit barcode message with no Prefix/Suffix.

Enable All Prefix/Suffix: Allow appending Code ID prefix, AIM prefix, User prefix, User suffix and Stop suffix to the barcode message.

Code Programming ON



Code Programming OFF



\*\* Disable All Prefix/Suffix  
【Pro CMD: 0311000】



Enable All Prefix/Suffix  
【Pro CMD: 0311010】



#### Prefix Sequences

6 options of Prefix Sequences:

Code Programming ON



Code Programming OFF



\*\* CodeID + AIM + User Prefix  
【Pro CMD: 0317000】



AIM + User Prefix + CodeID  
【Pro CMD: 0317030】



CodeID + User Prefix + AIM  
【Pro CMD: 0317010】



User Prefix + CodeID + AIM  
【Pro CMD: 0317040】



AIM + CodeID + User Prefix  
【Pro CMD: 0317020】



User Prefix + AIM + CodeID  
【Pro CMD: 0317050】



### Disable or Enable User Prefix

User Prefix is added before barcode message. For example, if the user prefix is “AB” and the barcode message is “123”, the Host receives “AB123”.



\*\* Disable User Prefix  
【Pro CMD: 0305000】

Code Programming ON



Code Programming OFF



Enable User Prefix  
【Pro CMD: 0305010】

### Program User Prefix

Enable “Program User Prefix”. Then program user prefix byte(s). To end the prefix, read “Save programming”. The user prefix byte is programmed in its hex values. See example below.

Note: The maximum length for user prefix is 10 bytes.



Program User Prefix  
【Pro CMD: 0300000】

## Example

Program “CODE” as user prefix (The hex of “CODE” are 0x43/0x4F/0x44/0x45):

1. Read “Code Programming ON”
2. Read “Program User Prefix”
3. Read “4,3,4,F,4,4,4,5” in order
4. Read “Save Programming”
5. Read “Code Programming OFF”.
6. Read “Allow User Prefix” to enable above programming. “CODE” will appear to the left of a barcode.



## Prefix/Suffix

### AIM Prefix



### Tools

AIM (Automatic Identification Manufactures) defines AIM prefix for many standard barcode formats.

AIM Prefix Format: “J” + AIM prefix + “0”

Code Programming ON



Code Programming OFF



\*\* Disable AIM Prefix  
【Pro CMD: 0308000】



Enable AIM Prefix  
【Pro CMD: 0308030】



---  
AIM ID is not customizable.  
---



Besides AIM prefix, Code ID prefix can be used to denote barcode format and can be customized.

The Code ID prefix MUST be one (1) or two (2) visible English letters.

**Code Programming ON**



**Code Programming OFF**



**\*\* No Code ID Prefix**  
**【Pro CMD: 0307000】**



**Allow Code ID Prefix**  
**【Pro CMD: 0307010】**

## Code ID Default



**All Bar codes, Load Code ID Factory Default**  
**【Pro CMD: 0307020】**

### Modify Code ID

See the examples below for how to modify a code ID and restore factory default code ID.

#### Example

Modify PDF417 Code ID to be “p” (hex value is 0x70)

1. Read “Code Programming ON”
2. Read “Modify PDF417”
3. Read Digit Code “7”, “0”
4. Read “Save Programming”
5. Read “Code Programming OFF” .

Code Programming ON



Code Programming OFF



Load Code ID factory default (including PDF417)

1. Read “Code Programming ON”
2. Read “2D, Load Code ID Factory Default”
3. Read “Code Programming OFF” .



Modify PDF417

【Pro CMD: 0005000】



Modify Data Matrix

【Pro CMD: 0005030】



Modify QR Code

【Pro CMD: 0005010】



Modify Maxicode

【Pro CMD: 0005040】



Modify Aztec

【Pro CMD: 0005020】



User Define Code

【Pro CMD: 0005090】



Modify EAN-8  
【Pro CMD: 0004040】



Modify EAN-13  
【Pro CMD: 0004050】



Modify UPC-E  
【Pro CMD: 0004060】



Modify UPC-A  
【Pro CMD: 0004070】



Modify Interleaved 2 of 5  
【Pro CMD: 0004080】



Modify ITF-14  
【Pro CMD: 0004090】

Code Programming ON



Code Programming OFF



Modify ITF-6  
【Pro CMD: 0004100】



Modify Code 39  
【Pro CMD: 0004130】



Modify Codabar  
【Pro CMD: 0004150】



Modify Code 93  
【Pro CMD: 0004170】



Modify Code 128  
【Pro CMD: 0004020】



Modify UCC/EAN-128  
【Pro CMD: 0004030】



Modify Code 11  
【Pro CMD: 0004280】



Modify EAN•UCC Composite  
【Pro CMD: 0004300】



Modify GS1 Databar  
【Pro CMD: 0004310】



Modify ISBN  
【Pro CMD: 0004240】



Modify Industrial 25  
【Pro CMD: 0004250】



Modify Standard 25  
【Pro CMD: 0004260】



Modify Plessey  
【Pro CMD: 0004270】



Modify MSI-Plessey  
【Pro CMD: 0004290】

Code Programming ON



Code Programming OFF



Disable or Enable User Suffix

User suffix is appended to the right of barcode message. For example, if user suffix is “AB” , and the barcode message is “123” , The Host receives “123AB” .



\*\*Disable User Suffix  
【Pro CMD: 0306000】



Enable User Suffix  
【Pro CMD: 0306010】

Code Programming ON



Code Programming OFF



Program User Suffix

Read “Program User Suffix” . Then program user suffix byte(s). To end the suffix, read “Save programming” . The user suffix byte is programmed in its hex values. See example below.

Note: The maximum length for user suffix is 10 bytes.



Program User Suffix  
【Pro CMD: 0301000】

**E**  
xample

-----  
Program “CODE” as user suffix (The hex of “CODE” are 0x43, 0x4F, 0x44, and 0x45):

1. Read “Code Programming ON”
  2. Read “Program User Suffix”
  3. Read “4,3,4,F,4,4,4,5” in order
  4. Read “Save Programming”
  5. Read “Code Programming OFF”
  6. Read “Allow User Suffix” to enable above programming. “CODE” will appear to the right of a barcode.
-

Disable or Enable Stop Suffix

“Stop Suffix” is the termination for a string of barcode messages. It can not be formatted like other suffix and prefix. It is fixed to the right and the very end of a barcode transmission.



**\*\*Disable Stop Suffix**  
**【Pro CMD: 0309000】**



**Enable Stop Suffix**  
**【Pro CMD: 0309010】**

**Code Programming ON**



**Code Programming OFF**



Program Stop Suffix

Read “Program Stop Suffix”. Then program stop suffix byte(s). To end the suffix, read “Save programming”. The stop suffix byte is programmed in its hex values. See example below.

Note: The maximum length for stop suffix is 2 bytes.



**Program Stop Suffix**  
**【Pro CMD: 0310000】**



**Program Ox0D as Stop Suffix**  
**【Pro CMD: 0310010】**



**Program Ox0D 0x0A as Stop Suffix**  
**【Pro CMD: 0310020】**

---

# Message Interception & Pack

---

## Introduction

Barcode message could divide information into different sections, such as product ID, manufacture ID, and so on. They are important overall. However, at certain situations, some of them are not of interest. This is where message interception comes in. Message interception feature allows transmission of selected section(s). Message intercept only applies to “raw” barcode messages.

The sequence of a read to transmit without message intercept is: Read a “raw” barcode → Add prefix → Append suffix → Append stop suffix → Transmit to Host.

The sequence of a read to transmit with message intercept is: Read a “raw” barcode → Intercept Message → Add prefix → Append suffix → Append stop suffix → transmit to Host.

A special programming, pack, can insert barcode messages into a certain message format.

Then the processing sequence is: Read to obtain barcode message → Intercept → Add prefix → Append suffix → Pack → Append stop suffix → Transmit.





It only intercepts selected symbols' raw barcode messages and it effects all barcode format.

A maximum of 3 barcode formats can be stored in the scanner's memory. All the barcode formats are stored in the orders of barcode formats being saved. If the scanner has already stored 3 barcode formats, any new barcode format that is saved to the scanner will cause the deletion of the 1st existing barcodeformat. Thus, the scanner will have room to store the new barcode format. The new barcode format will be added to the last order.

For Example: The existing barcode formats stored in the scanner are "1st -Code 128, 2nd -Code 39, 3rd- UPC-A" By saving a new barcode format, QR Code, the scanner memory will delete the 1st existing barcode format, which is Code 128. The new stored data will become 1st -Code 39, 2nd - UPC-A, 3rd -QR Code. Among the 3 barcode formats stored in the scanner, only 1 barcode format will be activated at once. The last barcode format saved to the scanner will be activated as default settings. Thus, in order to activate the other stored barcode formats, the user has to perform the activations manually.

**Code Programming ON**



**Code Programming OFF**



**\*\*Disable Interception  
【Pro CMD: 0315000】**



**Erase Certain Barcode Interception Options  
【Pro CMD: 0316010】**



**Enable Interception  
【Pro CMD: 0315010】**



**Erase Latest Interception Options  
【Pro CMD: 0316020】**



**Program Intercept Option  
【Pro CMD: 0316000】**



**Erase All Interception Options  
【Pro CMD: 0316030】**

## Message Interception



## Tools

**Code Programming ON**



**Code Programming OFF**



- ## Example

1. Read "Code Programming ON"
2. Read "Allow Interception"
3. Read "Program Intercept Option"
4. Check Symbols ID Number table for EAN-13
5. Read below digit barcodes

Note:

- 1、Maximum sections of barcode message interception are 5.
- 2、Maximum value is 127 for both start digital and end digital
- 3、Overlaps of barcode message sections are allowed and work independently.
- 4、Start unit and end unit determine its message section. In the above example, descending “004” and “001” means the section of “last 4th”, “last 3rd”, “last 2nd”, and “last one” digits.
- 5、To intercept only one digit, program start unit and end unit to be the same value.

Programming 2D Intercept Option

When programming 2D intercept option, read digit codes as interception command. The rules is as below:

» The interception command has two parts, which are barcode type part(Symbol ID) and data interception part. A command could have several data interception parts.

» A barcode type part(Symbol ID) uses a unit, such as “005” ; a data interception part uses three units, including intercepting direction unit:000(Ascending) or 001(Descending), start unit and stop unit.

» Barcode type part and intercepting direction regards a 3-digit decimal number as a unit; but start and stop digit regards a 6-digit decimal number as a unit. They uses 6 digits to present 4-digit value. The first two digits are for thousandth and next two digits for hundredth. For example, 001013 means 113.

» There is only one type of barcode to be setted to intercept in a time.

Code Programming ON



Code Programming OFF



**E**  
*xample*

For example, intercept QR Code from 1st digit to 20th ascending and from 113th digit to 140th ascending.

1. Read “Code Programming ON”
2. Read “Enable Interception”
3. Read “Program Intercept Option”
4. Check Symbols ID Number table for QR Code
5. Read below digit barcodes

digit	033	000	000001	000020	000	001013	001040
Denote	symbol ID	ascending	The 1st digit	The 20th digit	ascending	The 113th digit	The 140th digit
Barcode Type		Data Interception 1			Data Interception 2		

Rules:

- 1、Maximum intercept 3 barcode message sections
- 2、Maximum value is 9999 for start digital and end digital
- 3、Overlaps of barcode message sections are allowed and work independently.
- 4、Start unit and end unit determine its message section. In the above example, ascending “000001” and “000020” means the first 20 digits.
- 5、To intercept only one digit, program start unit and end unit to be the same value.



### Introduction

Data Pack is for the special requirements of barcode message. There are 3 types of data pack. Data pack effects all data formats, in that be sure to load the default “Disable Pack” if pack is not required.



\*\* Disable Pack

【Pro CMD: 0314000】

Code Programming ON



Code Programming OFF



### Normal Pack

Normal pack format:

[STX + ATTR + LEN] + [AL\_TYPE + DATA] + [LRC]

- » STX: 0x02
- » ATTR: 0x00
- » LEN: Barcode message length is expressed by 2 bytes, range “0x0000~0xFFFF” which is between 0 and 65535.
- » AL\_TYPE: 0x36
- » DATA: Barcode message
- » LRC: Parity byte

The algorithm:

- 1、 computation sequence is  $LRC = 0xFF + STX + ATTR + LEN + AL\_TYPE + DATA$
- 2、 computation method is XOR, byte by byte.



Normal Pack

【Pro CMD: 0314010】

# Batch Programming



## Introduction

Batch Programming can integrate a programming sequence into one barcode.

Batch Programming Rules:

- 1、 Sub-command is in this format: Programming Command + Parameters
- 2、 Sub-commands are terminated by semicolons. Note that there is no blank between a sub-command and its terminator semicolon.
- 3、 “Save Programming” (0000160) to terminate
- 4、 Use Barcode Generator software to make the 2D batch barcode.

Code Programming ON



Code Programming OFF



For example, to generate a batch barcode for “Illumination Keep ON” (0200030), “Auto Mode” (0302010), “One Reading Timeout = 2000” (0313000), and “Disable Fixed Length Selection” (0405140)for Interleaved 2 of 5.

0200030; 0302010; 0313000 = 2000; 0405140; 0000160; Generate a batch code.



Allow Read Batch Code  
【Pro CMD: 0001110】

# Batch Programming

---

## How to build a batch command

Batch command can contain many commands. Each command is divided by semicolon. Batch command must be ended with save command.

Command structure: command (+ equal mark + setting information)

The setting command list is provided below

There are 4 setting command modes

### 1、Setting syntax 1: Command

The most command is the one can be set at one time without the command.

e.g.:

The command setting the baud rate as 38400 bps: 0100060

The command setting auto mode: 0302010

### 2、Setting syntax 2: Command + equal mark + number

This command is used for setting the value of parameter, including the longest and shortest length of the barcode, one reading timeout setting, same barcode reading delay setting, sensitive value setting, etc.

e.g.:

The command setting the one reading timeout as 3000ms: 0313000 = 3000

The command setting the sensitive value as 10: 0312040 = 10

### 3、Setting syntax 3: command + equal mark + hex (e.g., 0x101a, 0x2C03)

This command can be used as setting the user-defined prefix, user-defined suffix, ending suffix, CodeID, increase or cancel the barcode length value, information intercepting, etc. Note: every two hexes in the command stand for a setting character

e.g.:

Append the fixed length 4 of interleaved 2of 5 to 26: 0405160 = 0x041a

Setting the suffix information of the ending as CR/LF: 0310000 = 0x0d0a

### 4、Setting syntax 4: command + equal mark+ double quotation marks

If the setting information is viewable character, then this mode of setting is appropriate.

e.g.:

The command setting the user-defined prefix information as AUTO-ID : 0300000 = “AUTO-ID”

# Batch Programming

---

## Produce setting code

Make the command list (ended with save command) to a PDF417, QR code or DataMatrix.

For example, to produce a batch command means: light Always On, Auto Scan, change delay time to 2 seconds, Disable Fixed Length of I 2 of 5. Firstly find commands as follows

0200030; (light Always On)

0302010; (Auto Mode)

0313000 = 2000; (change One Reading Timeout to 2 seconds)

0405140; (Disable Fixed Length of Interleaved 2 of 5)

0000160; (Save)

The batch setting code (PDF417) is as follow,



# Batch Programming

## Use batch setting code



Tools

Read “Code Programming ON” , then read “enable batch setting code” , and then read the batch setting code produced just now, finally Read “Code Programming Off”

Code Programming ON



Code Programming OFF



Code Programming ON  
【Pro CMD: 0006010】



Allow Read Batch Code  
【Pro CMD: 0001110】



Batch Setting Code



Code Programming OFF  
【Pro CMD: 0006000】



# Appendix

## Digit Code

It is required to read the save command after reading the digit code.



0

【Pro CMD: 0000000】



4

【Pro CMD: 0000040】



1

【Pro CMD: 0000010】



5

【Pro CMD: 0000050】



2

【Pro CMD: 0000020】



6

【Pro CMD: 0000060】



3

【Pro CMD: 0000030】



7

【Pro CMD: 0000070】



8

【Pro CMD: 0000080】



C

【Pro CMD: 0000120】



9

【Pro CMD: 0000090】



D

【Pro CMD: 0000130】



A

【Pro CMD: 0000100】



E

【Pro CMD: 0000140】



B

【Pro CMD: 0000110】



F

【Pro CMD: 0000150】

## Appendix

### Save and Abort



### Tools

In order to save the received data “Save” has to be read after data transition completed. If error occurs when reading data, the wrong data can be deleted and the setting up can be done again.

Eg, after a program code is received then ‘1 2 3’ in order is received, if then read “Abort One Data of Current Setting” the “3” will be deleted; if read “Abort One String of Current Setting” the ‘123’ will be deleted; if read “Abort Current Setting” both the program code and ‘123’ will be deleted, the device will be on status of “initiating program code”

**Code Programming ON**



**Code Programming OFF**



Save

【Pro CMD: 0000160】



Abort One Data of Current Setting

【Pro CMD: 0000170】



Abort Current Setting

【Pro CMD: 0000190】



Abort One String of Current Setting

【Pro CMD: 0000180】

# Appendix

## Factory Default List

Parameters	Factory Default	Remark
<b>General Programming</b>		
Code Programming	Off	
Send Pro Code Value	Off	
Illumination	Illumination Wink	
Aiming	Aiming Wink	
Decoding Beep	On	
Decoding Beep Type	Type 1	
Decoding Beep Volume	Loud	
Power On Beep	On	
Working Mode	Hand-held Mode	
One Reading Timeout	3000ms	
Same Barcode Reading Delay	Multi-reading Semi-prohibit, 1500ms	
Sensitivity	Normal Sensitivity	Sensitivity = 11
Exposure Imaging Mode	Normal Exposure Mode	
Power On, Send Product Info	Off	
OCR	Off	
<b>Communication Programming</b>		
Baud Rate	9600	RS232
Serial Port Check	No Check	RS232
Transmit Digits	8 Digits	RS232
Stop Digit	1 Digit	Fixed, RS232
Hardware Auto Flow Control	Off	RS232
Unkown Character, Beep	Off	USB HID-KBW
Emulate ALT + keypad	Off	USB HID-KBW
Function Key Mapping	Off	USB HID-KBW
Keystroke Delay	No Delay	USB HID-KBW
Caps Lock	Off	USB HID-KBW
Convert Case	Off	USB HID-KBW
Emulate Numeric Keypad	Off	USB HID-KBW
<b>Data Format Programming</b>		
Add Prefix/Suffix	Off	
Prefix Sequences	CodeID+User Prefix+AIMID	CodeID+AIMID+(Prefix+Data) +Suffix+Terminators
AIMID	Off	]Cm Mark
CodeID	Off	One Digit, Capital or Small Letter
User Prefix	Off	No more than 10 digits
User Suffix	Off	No more than 10 digits
Stop Suffix	Off	No more than 2 digits
Interception	Off	
Pack	Off	

# Appendix

## Factory Default List

Parameters	Factory Default	Remark
<b>Symbol</b>		
<b>Code 128</b>		
Enable	On	
Max Message Length	48	
Min Message Length	1	
<b>EAN-8</b>		
Enable	On	
Send Check Digit	On	
Enable 2 Digits Addenda Code	Off	
Enable 5 Digits Addenda Code	Off	
Expand to EAN-13	Off	
<b>EAN-13</b>		
Enable	On	
Send Check Digit	On	
Enable 2 Digits Addenda Code	Off	
Enable 5 Digits Addenda Code	Off	
<b>UPC-E</b>		
Enable	On	
Send Check Digit	On	
Enable 2 Digits Addenda Code	Off	
Enable 5 Digits Addenda Code	Off	
Expand to UPC-A	Off	
Send Default “0”	Off	
<b>UPC-A</b>		
Enable	On	
Send Check Digit	On	
Enable 2 Digits Addenda Code	Off	
Enable 5 Digits Addenda Code	Off	
Send Default “0”	Off	
<b>Interleaved 2 of 5</b>		
Enable	On	
Check	Off	
Send Check Digit	Off	
Max Message Length	80	

# Appendix

## Factory Default List

Min Message Length	6	No less than 4
Specified Lengths	Off	
<b>ITF-6</b>		
Enable	Off	
<b>ITF-14</b>		
Enable	Off	
<b>Code 39</b>		
Enable	On	
Check	Off	
Send Start & Stop Character	On	
Support Full ASCII	Off	
Max Message Length	48	
Min Message Length	1	
<b>Codabar</b>		
Enable	On	
Check	Off	
Send Start & Stop Character	On	ABCD/ABCD, Upper Case
Max Message Length	60	
Min Message Length	2	
<b>Code 93</b>		
Enable	Off	
Check	On	
Send Check Digit	Off	
Max Message Length	48	
Min Message Length	1	No less than 1
<b>UCC/EAN-128</b>		
Enable	On	
<b>GS1 Databar</b>		
Enable	On	
Send AI(01) Character	On	
<b>EAN•UCC Composite</b>		
Enable	Off	
UPC/EAN Composite Enable	Off	
<b>Code 11</b>		
Enable	Off	
Send Check Digit	On	

# Appendix

## Factory Default List

1 Digit, MOD11 Check	On	
Max Message Length	48	
Min Message Length	4	No less than 4
<b>ISBN</b>		
Enable	Off	
Transmit 13 Digits	On	
<b>Industrial 25</b>		
Enable	Off	
Check	Off	
Max Message Length	48	
Min Message Length	6	No less than 4
<b>Standard 25</b>		
Enable	Off	
Check	Off	
Max Message Length	48	
Min Message Length	6	No less than 4
<b>Plessey</b>		
Enable	Off	
Check and Transmit Check Digits	On	
Max Message Length	48	
Min Message Length	4	No less than 4
<b>MSI-Plessey</b>		
Enable	Off	
Check and Transmit Check Digits	On	
Single MOD10 Check	On	
Max Message Length	48	
Min Message Length	4	No less than 4

# Appendix

## Factory Default List

<b>PDF417</b>		
Enable	On	
Read Single PDF417 Only	On	
Max Message Length	2710	
Min Message Length	1	
Read Forward Direction Barcode Only	On	
<b>QR Code</b>		
Enable	On	
Read Single QR Only	On	
Max Message Length	7089	
Min Message Length	1	
<b>Aztec</b>		
Enable	Off	
Max Message Length	3832	
Min Message Length	1	
Reading Multi-barcodes of an Image	Off	
<b>Data Matrix</b>		
Enable	On	
Max Message Length	3116	
Min Message Length	1	
Read Single DM Only	On	
Rectangular Symbols	On	
Read Forward Direction Barcode Only	On	
<b>Maxicode</b>		
Enable	Off	
Max Message Length	150	
Min Message Length	1	



## Appendix

### AIM ID List

Symbol	AIM ID	Possible AIM ID Modifiers(m)
Code 128	JC0	
UCC/EAN-128	JC1	
EAN-8	JE4	
EAN-13	JE0	
EAN-13 with Addon	JE3	
UPC-E	JE0	
UPC-E with Addon	JE3	
UPC-A	JE0	
UPC-A with Addon	JE3	
Interleaved 2 of 5	JIm	0,1,3
ITF-6	JIm	1,3
ITF-14	JIm	1,3
Code 39	JAm	0,1,3,4,5,7
Codabar	JFm	0,2,4
Code 93	JG0	
Code 11	JHm	0,1,3
ISBN	JX0	
Industrial 25	JS0	
Standard 25	JR0	
Plessey	JP0	
MSI-Plessey	JMm	0,1
GS1 Databar	Je0	
EAN•UCC Composite	Jem	0-3
PDF417	JLm	0-2
QR Code	JQm	0-6
Aztec	Jzm	0-9, A-C
Data Matrix	Jdm	0-6
Maxicode	JUm	0-3

#### Reference:

- » ISO/IEC 15424:2008
- » Information technology – Automatic identification and data capture techniques – Data Carrier Identifiers (including Symbology Identifiers)

# Appendix

## Code ID List

Symbol	Code ID
Code 128	j
UCC/EAN-128	j
EAN-8	d
EAN-13	d
UPC-E	c
UPC-A	c
Interleaved 2 of 5	e
ITF-6	e
ITF-14	e
Code 39	b
Codabar	a
Code 93	i
Code 11	H
GS1 Databar	R
EAN•UCC Composite	y
ISBN	B
Industrial 25	I
Standard 25	f
Plessey	n
MSI-Plessey	m
PDF417	r
QR Code	s
Aztec	z
Data Matrix	u
Maxicode	x

# Appendix

## Symbols ID Number

Symbol	ID Number
Code 128	002
UCC/EAN-128	003
EAN-8	004
EAN-13	005
UPC-E	006
UPC-A	007
Interleaved 2 OF 5	008
Code 39	013
Codabar	015
Code 93	017
ISBN	024
Industrial25	025
Standard25	026
Plessey	027
Code11	028
MSI-Plessey	029
EAN•UCC Composite	030
GS1 Databar	031
PDF417	032
QR Code	033
Aztec	034
DataMatrix	035
Maxicode	036
User-Define Code	041
SPEC_OCR_B	064